

## Literature Review of Strategic Grain Reserves Interim Submissions

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*Prepared for the Agricultural Policy and Statistics Division  
of the Bill and Melinda Gates Foundation*

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October 22, 2008

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A literature review was conducted using both Web of Science and Google Scholar. Both search engines have the ability to return results listing “times cited.” Numerous NGO and governmental websites were searched, including IFPRI, USAID, FAO, World Bank, IMF, CGDEV, and USDA. A number of keywords were searched, including but not limited to:

- Strategic grain reserves
- Grain stocks
- Buffer stocks
- Food security reserves

Much of the academic literature returned was from the late 70s and early 80s, and discussed ways in which strategic grain reserves (SGRs) were used as a supply management tool to mitigate price fluctuations in grain markets. Most of the more recent articles evaluate the use of SGRs in Asia and Sub-Saharan Africa, primarily eastern and southern Africa. Those focusing on Asia tend to address the role of SGRs in lessening price fluctuations, while those focusing on Africa tend to address the role of SGRs in crisis response.

It appears that SGR capacity has been drastically reduced in recent years in response to international trade protocols and a stronger overall market orientation. There is a push among NGOs and private firms to move towards a more market-based storage system, providing incentives for farmers to store their grains in private bins that could then achieve the same price and risk mitigation effects as a government-run storage system. This is being encouraged through a system of warehouse receipt initiatives. However, case studies dominate, with little to no systematic evaluation.

Below we include the abstracts for the top-cited articles relevant to specific sub-topics related to SGRs.

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## Subtopic 1: SGRs and Food Price Fluctuations

1) Bayerlee D, Jayne TS, Myers RJ. (2006). **Managing food price risks and instability in a liberalizing market environment: overview and policy options.** *Food Policy*, 31(4), 275-287.  
Times Cited: 8

### Abstract

Managing food price risks and instability is a major challenge in the midst of ongoing food market reforms. This article summarizes the key findings from the papers in this special volume (the result of an international workshop of academics and practitioners). Questions addressed revolve around five broad areas: (i) the sources and magnitudes of food price instability in different country contexts; (ii) the economic and social costs stemming from price instability; (iii) the lessons from food market reforms to date; (iv) the design of policy reforms in ways that promote efficient and stable market development and protect the interests of the poor; and (v) potential policy responses to food price instability in a liberalizing market environment.

Additional articles in this special volume may be of interest.

### Summary

Article Type: Overview article summarizing papers presented in special issue, the result of a 2005 conference which aimed to synthesize views about best strategies for minimizing food price risks.

Area Covered: Developing world, with attention to the higher risks faced by landlocked countries in Africa

Conclusions: Development of market-oriented systems is likely to be the best option for achieving sustained agricultural production despite food price risks, and these risks can be minimized through a variety of specific strategies discussed in the paper (and supported by other papers within this special volume).

2) B. Ramaswami, B., & Balakrishnan, P. (2002). **Food prices and the efficiency of public intervention: The case of the public distribution system in India.** *Food Policy* 27(5), 419-436.  
Times Cited: 5

### Abstract

As public intervention is a pervasive influence on food prices, this paper asks whether and how the inefficiency of state institutions matters to food prices. In the context of the wheat subsidy scheme in India, the paper models the implications of quality differences between public and private grain supply. As both are procured at similar prices, the lower quality of public grain marks the inefficiency of government operations. The paper proposes and empirically validates a method to test for demand switches that occur as a result of quality preference. As a result, a reduction in food subsidies increases food prices and hurts the poor even when they are not major recipients of the subsidy. This seeming paradox is contingent on the inefficiency of public interventions. Thus, the

outcome will be different if the reduction in food subsidy were to be accompanied by reforms in the associated state agencies.

#### Summary

Article Type: Economic model of combined public and private grain provision, tested against historical data

Area Covered: India

Conclusions: Inefficiency of public wheat provision means that a reduction in food subsidies increases food prices and hurts the poor even when they are not major recipients of the subsidy.

**3) Coulter, J. & Onumah, G. (2002). The role of warehouse receipt systems in enhanced commodity marketing and rural livelihoods in Africa. *Food Policy*, 27(4), 319-337. Times Cited: 36**

#### Abstract

Most African countries have, since the 1980s, liberalized agriculture without experiencing food crisis, as feared by skeptics, but the outcome of reforms has been rather disappointing and agricultural markets remain underdeveloped and inefficient. One means to improve agricultural marketing, which is the focus of this paper, is to develop regulated warehouse receipt (WR) systems. The system will curtail cheating on weights and measures; ease access to finance at all levels in the marketing chain; moderate seasonal price variability and promote instruments to mitigate price risks. It will also reduce the need for the Government to intervene in agricultural markets, and reduce the cost of such interventions if needed.

The major problem in establishing WR systems in Africa is disabling elements in the policy environment. Drawing on experience from projects implemented in Africa during the last decade, the authors outline how this challenge can be addressed, the most crucial being to build strong stakeholder support behind the initiative.

#### Summary

Article Type: Case study of authors' work in Zambia, plus thoughts about what might work in Africa.

Area Covered: Zambia

Conclusions: Public certification and inspection of receipt-based warehouses at the national level may help them more effectively contribute to agricultural market development in SSA.

**4) Jha, S., & Srinivasan, P.V. (1999) Grain price stabilization in India: Evaluation of policy alternatives. *Agricultural Economics*, 21(3), 93-108. Times Cited: 5**

### Abstract

Stabilization of prices is an important element of food policy in India as in most other countries — both developing and developed. However, since the magnitude of grain stocks held for this purpose as well as the costs of physical storage have become prohibitively high, there is now a need for finding cost-effective alternatives including non-interventionist and market-oriented methods for price stabilization. In this paper we consider the case of rice and wheat which are staple foodgrains in India. We make a comparison between alternative price stabilization policies including that of holding buffer stocks in terms of their impact on domestic price stability, producer and consumer welfare and government costs. A multi-market equilibrium framework is used where private storage, consumption, supply and prices of rice and wheat are determined simultaneously. Indian exports and imports are assumed to affect world prices. The alternative price stabilizing mechanisms are ranked according to both the criteria, welfare and price stability achieved. The main findings are as follows. The ranking of alternatives varies with the criterion used. Greater price stability need not necessarily imply greater welfare. The option of variable levies on private external trade turns out to be the most inexpensive and that of domestic buffer stocks the costliest in achieving price stability. Further, the efficacy of buffer stocks and subsidy to private storage in stabilizing prices is lower under free trade as compared to the case where the economy is closed to private external trade.

### Summary

Article Type: Economic modeling (using a multi-market equilibrium framework) of alternative price stabilization mechanisms to public grain reserves

Area Covered: India

Conclusions: Greater price stability does not necessarily imply greater welfare. Variable levies on private external trade is the cheapest alternative, and the efficacy of buffer stocks and subsidy to private storage is lower under free trade than in a closed market.

### **5) Jayne, T.S. & Jones, S. (1997). Food marketing and pricing policy in Eastern and Southern Africa: A survey. *World Development*, 25(9), 1505-1527. Times Cited: 108.**

### Abstract

This article surveys the empirical record of grain marketing and pricing policy in Eastern and Southern Africa over 1930–1995. The paper addresses five key issues with major implications for food policy throughout Africa: (a) why the anticipated supply response to market liberalization has not yet occurred; (b) why the common assumption of state taxation of farmers to support a cheap food policy does not apply in most of the countries in the region; (c) why the temporary successes of the state-led approach to stimulating smallholder grain production were unsustainable; (d) why the elimination of government food subsidies associated with market reform has not adversely affected consumers; and (e) why the fiscal cost of the marketing systems at least initially worsened rather than improved after the reforms were implemented in most countries. The key future challenges for marketing policy are how to develop coordinated and financially sustainable input, finance and

commodity marketing systems for raising productivity growth in smallholder agriculture while overcoming inherited agricultural dualism, and how to mitigate the effects of food price instability in a cost-effective manner.

#### Summary

Article Type: Historical survey of controlled food marketing

Area Covered: Zimbabwe, Zambia, Kenya, Malawi, Tanzania, and South Africa

Conclusions: Historical circumstances strongly influenced how controlled food marketing evolved from the 1930s-1995. This system has impacted the experiences these countries have had with market liberalization.

### **6) FAO Strategic Grain Reserves: Guidelines for their establishment, management, and operations. (1997). (FAO Agricultural Services Bulletin – 126) Available:**

<http://www.fao.org/docrep/w4979e/w4979e00.htm>

#### Preface

These guidelines have been prepared to assist those countries which have moved, or are in the process of moving, towards a liberalized system for marketing agricultural produce and who wish to maintain a strategic grain reserve to guard against possible failures of the free market to cope adequately for the food needs of the population.

Past experience of maintaining strategic grain reserves has mostly been associated with strictly regulated cereal markets in which the government, or a government-controlled agency, was the only official participant. With liberalization interventions by government, unless they are carefully designed, are likely to distort the normal functioning of the market which, in turn, will have implications for the activities of private sector participants. To minimize such disruptions there is a need to adopt a different approach for the management and operation of such reserves which takes into account the mechanisms operating in the free market.

Various options are available for the design and operation of a reserve depending on the medium- to long-term objectives of government and the general conditions influencing the functioning of the market. To assist in this process, various options which should be considered in deciding which are the most appropriate to meet the government's policy objectives are presented in these guidelines.

#### Summary

Article Type: Handbook

Area Covered: developing world

Conclusions: Details best practices for determining design and operation of SGR for meeting food needs, within a liberalized agricultural market system.

## **Subtopic 2: Crisis Response Articles**

**7) Devereux S. (2007). The impact of droughts and floods on food security and policy options to alleviate negative effects. *Agricultural Economics*, 37, 47-58. Times Cited: 9**

### Abstract

This article introduces an analytical framework for understanding the impacts of droughts and floods on rural livelihoods, based on Sen's "entitlement approach," and applies the framework to the recent food crises in Malawi. Weather shocks trigger a sequence of "entitlement failures," which can result in a famine unless public action intervenes to mitigate these impacts. Policy responses can compensate for failures of production-based entitlement (free or subsidized input distribution); labor-based entitlement (public works programs or "employment-based safety nets"); trade-based entitlement (grain reserve management or food pricing policies); and transfer-based entitlement (food aid or cash transfers).

### Summary

Article Type: Case study with theoretical analysis

Area Covered: Malawi

Conclusions: A combination of factors contributes to the severity of food crises. (More detailed conclusions are not known at this time, as we can only access the abstract currently. We can request the entire article through Inter-Library Loan if there is interest.)

**8) Takavarasha, Tobias. (2006). The role of the private sector in addressing food emergencies and vulnerabilities in southern Africa: A summary of the literature. (FAO/University of Pretoria Workshop on Partnerships between Governments and Private Sector to Overcome Food Shortages). Times Cited: 5.**

### Abstract

Southern African nations have increasingly been facing food insecurity problems as a result of various factors including persistent droughts and adverse economic conditions that have aggravated the difficulty of some countries in the region to meet their food needs. Imports of food and grain have been on the increase as the affected countries have tried to mitigate the food shortages experienced. Amongst the Southern African countries that have suffered grain shortages as a result of drought in recent years, Malawi, Zambia and Zimbabwe have been the hardest hit. The Grain Marketing Board (GMB) in Zimbabwe, Agricultural Development Marketing Corporation (ADMARC) in Malawi and Food Reserve Agency (FRA) in Zambia have played a major role in importing grain to fill the cereal deficits experienced, whilst the private sector has played a very limited role in importing commercial supplies as well as relief supplies.

### Summary

Article Type: Literature Review

Area Covered: Southern Africa, particularly Malawi, Zambia, and Zimbabwe

Conclusions: Public-private partnerships are able to respond rapidly to disaster, but policies need to encourage their participation (or at least not discourage it), and infrastructure constraints need to be addressed.

**9) Tschirley, D., Nijhoff, J., Arlindo, P., Mwinga, B., Weber, M., Jayne, T. (2006). Anticipating and responding to drought emergencies in southern Africa: Lessons from the 2002-2003 experience. (Department of Agricultural Economics, Michigan State University, International Development Working Papers: 89). East Lansing, Michigan: USA. Times Cited: 19 (GS)**

#### Abstract

This paper examines the efficiency and effectiveness of emergency response in southern Africa through the lens of the 2002/03 food crisis in the region. The authors outline improvements in information and operational procedures needed to enhance the response to future events. They also discuss national and regional trade regime changes that would reduce the need for emergency response, and consider what lessons the 2002/03 crisis may have for the role of Strategic Grain Reserves (SGRs).

#### Summary

Article Type: Case study of 2002/2003 drought experience

Area Covered: Southern Africa, Mozambique and Zambia

Conclusions: SGRs played no role in a largely successful response to the 2002/3 food crisis. However, they have re-emerged on the policy agenda despite a discouraging management record.

**10) Devereux S. (2002). The Malawi Famine of 2002. (IDS Bulletin, Volume 33, Number 4, 70-78). Institute of Development Studies. Times Cited: 22**

#### Abstract

Several hundred Malawians died in early 2002, in the country's worst famine since 1949, following a combination of production, trade, aid and information failures. The maize harvest fell by 32 per cent due to erratic rainfall during the agricultural season. Food imports were delayed by transport bottlenecks and competing demand from neighboring food-deficit countries. The Strategic Grain Reserve (SGR) had been sold on IMF advice. Donors were slow to react, partly because of bad relations with the Government of Malawi at the critical time, and partly because crucial information was wrong (cassava production was overestimated), concealed (SGR sales were not transparent), or ignored (NGO warning signals were dismissed as not credible). Underlying vulnerability factors included: deepening rural poverty, which eroded asset buffers and informal social support systems; the demographic and economic consequences of HIV/AIDS; and an economic liberalization

trajectory since the 1980s that has systematically undermined the capacity of Malawian smallholders to construct viable livelihoods. This famine highlights the difficulties of protecting household food security in poor, liberalized economies.

### Summary

Article Type: Case study of Malawi famine

Area Covered: Malawi

Conclusions: Identifies contributing causes to the 2001/2 Malawi food crisis: a reduced maize harvest, import bottlenecks, high poverty and vulnerability, late delivery of food aid, and mismanagement of the strategic grain reserves.