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Public Stockpiling of Rice in Asia Pacific

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Executive Summary

Rice is, without doubt, the single most important food/agricultural commodity in Asia. Other than its primacy in terms of agricultural production (both in terms of volume and area dedicated to its cultivation), the sheer bulk of it is produced, consumed, and traded within the region and remains an integral part of the region's economy, socio-cultural life, and oftentimes its political sphere. Given its uncontested position as the most important staple crop, "food security" is often, equated to "rice security" in the region.

Public stockpiling of rice

The public stockpiling of staple grains is one of the earliest strategies used to mitigate food supply instability. After many millennia, it remains an important aspect, if not the cornerstone of many national food policies around the world. In the case of the Asia Pacific region this essentially translates to stockpiling and building up rice reserves.

Several objectives can be met through successful public stockpiling policies. Some of these include:

a) Stability of food supply and physical access to food (during emergencies and/or otherwise)
b) Market price stabilisation and assured access to affordable food
c) Increased incomes for farmers in agricultural economies so as to incentivise greater production

Most of the benefits of public stockpiling are short-term. They can be extremely useful stop-gap measures in ensuring food economy stability and are thus a useful buffer to have in a government's arsenal of food security policies. There are however numerous negative (both real and potential) implications to pursuing policies of public stockpiling. These implications are caused by a number of factors. Firstly, there are no set norms or directives on how a public stockpiling programme ought to work, what the optimal levels are or how they are to be calculated. Secondly, stockpiling policies are often used to fulfil multiple objectives and because of this, some objectives may result in activities which conflict with other objectives. These points are explored in greater detail in the main text of the report.

Types of public stockpiles

An analysis of public stockpiles maintained by countries within the Asia Pacific region revealed four different types of national public stockpiles and one regional/multilateral form. They are summarised as follows:

National public stockpiles

Emergency/humanitarian stocks:

Stocks which are maintained to protect access to food in the event of a food shortage during emergencies.

Stocks for food security:

Often referred to as buffer stocks, these are used to ensure stability in the availability and price of rice.

Safety net stocks

Targeted at lower income segments of society, such stocks are often sold at highly subsidised prices.

Stocks for trade

The purpose is to guarantee minimum profit margins for farmers and ensure export stability.

Multilateral stockpiles

Regional food reserves

The ASEAN Plus Three Emergency Rice Reserve (APTERR), which comprises the ten ASEAN member states plus China, South Korea and Japan, was set up to help the region stabilise rice supplies during emergencies.

Implications of Public Stockpiling

Governments adopting stockpiling policies need to be acutely aware of its implications, on both domestic and international levels, and be prepared to mitigate potential risks such as:

At the domestic level

- Fiscal burden
- Potential long-term dependency
- Politicisation of food
- Market distortion and crowding out of the private sector

- Losses and inefficiencies
- No guarantee of food security

At the International level

There are two different dimensions to potential international implications of adopting stockpiling policies.

- Impact on International trade and economics
- Psychological effects

Despite the negative implications and a chequered history of public stockpiling and reserve programmes, it seems highly likely that many governments in Asia Pacific are going to maintain and operate rice reserves and stockpiling programmes. There are numerous reasons and rationales to support such policies in the various countries. Factoring in, and keeping abreast of developments in public rice stockpiling initiatives and policies in the region is going to be essential and important when thinking of "food security" from a macro perspective.

Introduction

Public stockpiling is considered a strategy for domestic food security and an alternative to trade-based policies for food. This trend is particularly noticeable in countries in the region with large populations like India, China, and Indonesia, as well as among countries which have relied heavily on food imports in the recent past such as the United Arab Emirates, Bangladesh, the Philippines and Malaysia, among others. The public stockpiling of rice is not new and is gaining interest and fast becoming an important aspect of national food policies.

Stockpiling of food, particularly staple grains like rice, has been used as a method to ensure stability of food supply throughout human history at both the individual/household level as well as collectively by governments. Maintaining public stocks helps to mitigate a number of risks faced by food insecure and food vulnerable people. Countries with food stockpiles can help its populations weather (i) global food price shocks; (ii) local supply shocks (failed harvests); (iii) income shocks (from economic downturns or exchange rate shocks); (iv) disruptions in trade (export bans), and (v) emergencies and calamities.

Most countries around the world have experience with some form of public stockpiling of food. For many countries with large populations, such stockpiling of food serves as an important pillar of national food policies and ensures stability in supply, stability in price and allows distribution of food to vulnerable populations. This has been particularly true in the case of staple grains like rice, wheat and maize.

The global food price crisis of 2007-2008, which saw the international prices of staple grains increase drastically, caught many countries off-guard. While all importing countries were hit by the episode, developing economies suffered the impacts the most as they found themselves priced out of the market. This experience, which revealed some of the weaknesses in the international food market, led to a re-evaluation of stockpiling strategies, its potential uses and needs.

The general practice of stockpiling: a historical perspective

In the 20th Century the practice and popularity of stockpiling of food have gone through ups and downs due to a variety of reasons; such as world wars, trade policies, technological breakthroughs[1] and ideology.[2]

In the 1940s and 50s, there was wide acceptance of the need for some form of stockpiling (especially emergency reserves and/or buffer stocks) of important staple commodities.[3,4] This position however took a U-turn with the onset of the Green Revolution which significantly boosted food production and it was argued that efficient international trade would be sufficient in guaranteeing a steady supply of food at a lower cost across the world. This led to most countries gradually cutting public stockpiles from the 1970s onwards.[5]

The resurgence of public stockpiling

In the 70s, maintaining stockpiles was equated with high fiscal costs, loss and wastage of food, and deemed distortionary to global trade and markets.[6] While some countries continued to maintain national food stocks of important commodities, the overall trend shifted towards trade policies and international trade to meet domestic food supply deficits.[7]

This downward trajectory continued until 2007-2008,[8] when the world was hit by the food price crisis. After close to three decades of sustained international food prices, the 2007-2008 crisis and its

[1] Technological breakthroughs have come about in numerous aspects from seed technology to supply chain efficiencies, information technology like GPS and satellite monitoring, communications and market information, to name but a few.

[2] This refers to the ideological rifts of the 20th Century between market and planned/state economic models.

[3] Porter, R.S., "Buffer Stocks and Economic Stability", Oxford Economic Papers, New Series, Vol. 2, No. 1 (Jan 1950) pp. 95–118

[4] The 40s and 50s thinking was still influenced by Malthusian theories and the memory and experience of the World War II which saw international trade come to a halt was also relatively fresh. Overall agriculture also commanded a relatively more important role in all economies and hence stockpiling policies were considered important aspects of food and agriculture policies.

[5] Massell, B.F., "Price Stabilization and Welfare", Quarterly Journal of Economics (May 1969).

[6] Bigman, D., and Shlomo Reutlinger, "National and International Policies Toward Food Security and Price Stabilization", American Economic Review, Vol. 69, No. 2, (May 1979)

[7] Bigman, D., and Shlomo Reutlinger, "Food Price and Supply Stabilization: National Buffer Stocks and Trade Policies", American Journal of Agricultural Economics, Vol 61, No. 4, (Nov 1979)

[8] Gilbert, Christopher L. *Food Reserves in Developing Countries: Trade Policy Options for Improved Food Security*. *Issue Paper No. 37*. Geneva: International Centre for Trade and Sustainable Development, 2011.

resultant price hike was an unexpected shock. In Asia the resurgence of stockpiling, particularly of rice, emerged after the export bans of rice and grains by India and Vietnam in 2007-2008, and Russia's ban on wheat exports in 2010.

Driven largely by increasing and volatile prices for staple grains and some vegetable oils, many governments have since deemed international markets jittery and unpredictable. The result of the upward prices and volatility saw many farmers, especially in developing countries, being priced out of the market and driven towards hunger.[9]

This episode also exposed vulnerabilities for most food importing and lower income countries. Despite having safely relied on international markets to provide food through trade-based policies for decades the crisis found markets closing on them. Many major exporters of staples like rice closed their borders by enforcing export bans which only exacerbated the panic and deepened the crisis.[10]

Maintaining stockpiles has largely come to be seen as a response to international trade uncertainties and volatility.[11] The crisis was a result of complex and interrelated reasons and since their occurrence, there is growing evidence that countries, particularly in Asia and Africa, have started or are revisiting stockpiling policy options once again in order to guarantee food security for its citizens. This trend has been more visible (and popular) in both food importing and developing countries.[12]

However, there are spill-over effects of adopting such policies internationally. In the case of thinly-traded commodities[13] such as rice, the decision to adopt food stockpiling policies is likely to result in less stock available globally for export, thus potentially leading to limited supply and sustained

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[9] Hadley, Derek D. and Fan Shenggen, *Reflections on the global food crisis: How did it happen? How has it hurt? And how can we prevent the next one?,* Washington D.C.: International Food Policy Research Institute, 2010.

[10] Timmer, Peter C., "Reflections on Food Crises Past", *Food Policy* 35 (2010), pp 1–11.

[11] Gilbert, Christopher L. *Food Reserves in Developing Countries: Trade Policy Options for Improved Food Security*. *Issue Paper No. 37*. Geneva: International Centre for Trade and Sustainable Development, 2011.

[12] World Bank. *Using Public Food grain Stocks to Enhance Food Security.* Washington D.C.: The World Bank, 2012.

[13] Thin markets refer to commodities of which a very small percentage of total supply is actually traded. For the case of rice it is estimated that only 7% of total world production is internationally traded.

higher prices.[14] Widespread adoption of stockpiling practices would therefore have the opposite effect to their intended outcomes and actually exacerbate volatilities in food supply and price.

Recent trends in public stockpiling policies in Asia Pacific

Following the 2007-2008 food price crisis, complete reliance and dependence on trade and international markets for food is no longer seen as a safe option for most food importing governments. In response, there have been two separate, but interlinked policy directions which have come to be seen as favourable in addressing future market uncertainties. The first is in terms of building up national stockpiles for essential staples like rice; the second is in pushing towards the goal of self-sufficiency, especially in rice, for which public stockpiling policies will be instrumental to support subsidies and defend floor prices and farmers' incomes.

Table 1 offers a snapshot of some of the countries which currently engage in public stockpiling practices for rice in the Asia Pacific region and the types of stocks they maintain. In recent years many developing countries have expressed interest in either starting or increasing their public rice stockholding levels through domestic procurement and imports. In the same vein, other major importers in the Southeast Asian region, who have usually depended on trade to make up for shortfalls in their domestic rice production, are also changing their policies. Indonesia, the Philippines, and Malaysia are currently pursuing policies and strategies geared towards 100 per cent rice self-sufficiency, and building up their buffer stocks.[15] Rice stockpiling practices and policies are now seen as an integral part of their larger food security policy.

Table 1: Selected countries with existing rice stockpiling policies and types of stocks maintained

Entity	Country	Food Security Stockpiles	Emergency/ humanitarian stocks	Safety Net Stockpiles	Stockpile for export purposes
Country level	China	✓			
	Japan	✓			
	India	✓	✓	✓	✓*
	Bangladesh	✓			
	Indonesia	✓	✓	✓	

[14] Timmer, Peter C., op. cit, pp 1–11.

[15] Based on fieldwork conducted by J.A. Lassa and M. Shrestha in Indonesia, Philippines and Malaysia, September-November 2014

	Philippines	✓	✓		
	Malaysia	✓			
	Thailand				✓
	Singapore	✓			
	Vietnam	✓			✓
	Brunei	✓			
	Hong Kong (SAR)	✓			
Regional level	APTERR		✓		

***.** Not officially verified/validated

Source: Data derived from literature review and field findings by Lassa and Shrestha, 2014.

Recent trends in the public stockpiling of rice in Asia

Most countries in Asia have a history of public stockpiling of food, particularly rice and other staples. Some of these programmes' beginnings can be traced back to colonial times, while some were formed post-independence to address certain challenges and needs in the domestic food economy. The resurgence in rice stockpiling was observed especially after the export bans of rice and grains by India and Vietnam in 2007-2008, and Russia's ban on wheat exports in 2010. Maintaining reserves for emergencies and/or unforeseen disasters (including those linked to climate change) is another aspect which is making stockpiling, especially for rice, a more attractive proposition.

In the case of Southeast Asia, many countries in the region historically have adopted a mix of trade instruments such as government to government trade, local procurement, and procurement through the private sector in managing their rice stocks and stockpiles. However, if most importing countries were to strongly adopt stockpiling policies, this would put additional pressure on stocks available globally, potentially leading to limited supply and sustained higher prices.[16] Widespread adoption of stockpiling practices could therefore have an opposite effect to their intended outcomes, and actually exacerbate volatilities in food supply and price. Stockpiling can also lead to the possibility of dumping excess stockpiles which would then lead to a significant distortion of world markets.

APTERR and regional rice reserve mechanisms

The ASEAN Plus Three Emergency Rice Reserve (APTERR) and the ASEAN Food Security Information System (AFSIS) are notable achievements. AFSIS was started in 2003 with the aim of becoming a central information repository for five commodities in the ASEAN region. These include rice, maize,

[16] Timmer, Peter C., op. cit, pp 1–11.

soybeans, sugar, and cassava. AFSIS monitors and analyses production, import, export, inventory stock, prices, food security ratio and self-sufficiency ratios for these commodities.

The establishment of the ASEAN Emergency Rice Reserve (AERR) began in 1979 with voluntary contributions (in the form of pledges) of 87,000 metric tonnes (mt) by member states. Since 2001 a rice reserve mechanism for East Asia was also considered which led to the start of the East Asian Emergency Rice Reserve (EAERR). However, after the 2007-2008 crisis, the AERR and EAERR were brought together to form a permanent scheme under the ASEAN Plus Three Emergency Rice Reserve or APTERR in 2009, as a mechanism to address potential food shortages in the region. The final formal agreement by the ASEAN +3 states (China, Japan, and South Korea) was signed in October 2011 in Jakarta.

Table 2: Current earmarked rice quantity by APTERR states

Countries	Earmarked Rice Quantity (in MT)
Brunei Darussalam	3,000
Cambodia	3,000
Indonesia	12,000
Lao PDR	3,000
Malaysia	6,000
Myanmar	14,000
Philippines	12,000
Singapore	5,000
Thailand	15,000
Viet Nam	14,000
P.R. China	300,000
Japan	250,000
Republic of Korea	150,000
Total	787,000

Source: ASEAN Plus Three Emergency Rice Reserve Agreement, 2011

The idea and motivation behind APTERR and AFSIS are important and noble. Understanding and monitoring food security from a regional perspective, rather than from just national levels, captures the dynamics of a regional food system from a macro-level. Such a holistic overview can also provide for useful insights and help identify problem areas and concerns with regard to food security within

the region and minimise the need for national public stockpiling policies. To date however these regional institutions have not been fully effective.

This ineffectiveness has come about due to a number of reasons. Firstly, AFSIS still has difficulty collecting data in a timely manner in order to be able to efficiently evaluate and monitor the regional food security situation. An early warning system is supposed to be an important component of AFSIS which could then be used to activate APTERR. The lack of timely data and sharing by states has hindered this.

Secondly, the APTERR mechanism has strict rules and protocols in terms of activation and release of stocks when requested by governments. Usually this takes a long time as APTERR works on the principal of virtual stocks and does not directly control any physical products. This means that when there is an emergency such as a natural disaster, the time taken for eventual delivery and distribution of rice to affected areas became extremely lengthy.

Types/classification of public stockpiles

An analysis of public rice stockpiles maintained in the countries studied reveals four different types of national public stockpiles and one multilateral form. They are summarised as follows:

National public stockpiles

Emergency/humanitarian stocks:

These are stocks which are maintained to protect access to food, especially for vulnerable groups, in the event of a food shortage during emergencies. Release of such stocks happens in the event of any type of emergency or as part of bigger post-disaster safety nets, as deemed necessary by governments.

Stocks for food security:

Often referred to as buffer stocks, food security stocks are used in order to ensure stability in the availability and price of food. Such stockpiles are usually used by governments to control domestic supply and domestic prices of food. The theoretical foundation for such stocks is for governments to procure food from farmers and/or markets on the cheap and release stocks when market prices move above what is deemed acceptable levels in terms of affordability.

Safety net stocks:

Safety net stocks are targeted at lower income segments of society. Such stocks are often sold at highly subsidised prices. This type of food stocks is sometimes maintained and stored together with *stocks for food security* purposes. However, unlike stocks *for food security*, safety net stocks are targeted at certain groups or beneficiaries as classified by governments based on defined poverty lines, as seen in countries like India and Indonesia. Such stocks generally intend to improve availability and access for populations who suffer from chronic food insecurity.

Stocks for trade

This type of public stock is often seen as an anomaly since it is held by major exporting countries that have little urgency in terms of needing to ensure food availability for its people. The purpose of such stocks is essentially to guarantee minimum profit margins for farmers and export stability (See Table 1). In Vietnam and Thailand, this policy is often a response to lucrative business in the overseas food trade. In Thailand, the reselling of rice stocks procured by the government from its farmers is handled by the Ministry of Commerce in international markets. Profits or losses incurred by this operation are borne by the government.

International/Multilateral stockpiles

Regional food reserves

Probably the most cited and well known example of a regional food reserve mechanism, as mentioned earlier, is the ASEAN Plus Three Emergency Rice Reserve (APTERR). Comprising the ten ASEAN member states plus China, South Korea and Japan, the reserve was set up to help the region stabilise rice (the region's staple food crop) supplies during emergencies. APTERR currently has 787,000 tonnes of pledged rice at its disposal.[17] Other examples include the South Asian Association for Regional Cooperation (SAARC) Food Bank in South Asia[18] and the Economic Community of West African States (ECOWAS) regional humanitarian reserve.[19,20]

[17] Personal interview with Manager of APTERR Secretariat, Bangkok, 13 September 2014. See also APTERR http://www.apterr.org/images/pdf_apterr/APTERR-Leaflet.pdf

[18] The SAARC food bank has yet to be operationalised.

General implications of public stockpiling

Public stockpiling policy implications can be evaluated both domestically and internationally. The implications of both are discussed briefly below. Governments intent on adopting such policies need to be acutely aware of these implications and be prepared to mitigate potential risks.

Domestic Implications

- Fiscal burden

  Stockpiling policies entail three main stages; (i) procurement, (ii) storage and maintenance, and (iii) distribution or stock rotation. All three aspects come at a cost to national budgets and taxpayers. The scale of the costs involved (fixed and variable) will depend on the overall size of the operation. In theory stockpiling programmes that maintain buffer stocks primarily for price stabilisation should be profitable/profit generating operations, however, most past experience suggests that this is not sustainable in the long-run.[21]

- Potential long-term dependency

  Effective use of stockpiling can help achieve a number of benefits for national food economies. However, stockpiling effectiveness may lead to governments' dependence on the programme as a long-term solution to food and agricultural problems instead of as a short-term fix.

- Politicisation of food

  The politicisation of food seems to have been a common phenomenon in almost all countries that use public stockpiling programmes. With direct government control, stockpiling programmes have been used to further political goals of incumbent governments. A lack of transparency and accountability often leads to a greater likelihood of such politicisation.[22]

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[19] The ECOWAS Regional Food Security Reserve has also not been realised yet. Currently with the help of the EU, the programme is starting to be set up.

[20] Op. cit., Gilbert, *Food Reserves in Developing Countries*

[21] World Bank. *Using Public Food grain Stocks to Enhance Food Security.* Washington D.C.: The World Bank, 2012.

[22] An example of how food and stockpiling programmes can be politicised is when governments use stocks to intervene in local markets to supress food prices (and inflation) to reap political benefits. Other examples are when incumbent governments distribute cheap (or free) food in favoured constituencies or in some cases procuring from local producers at high prices to appease farmers and related voting blocks.

- Market distortion and crowding out of the private sector

  With governments becoming directly involved in the domestic (and sometimes international) market for food commodities, the private sector can become dis-incentivised and disenfranchised, and cannot partake in the food market. This can lead to the government eventually monopolising the food economy.

- Hampers diversification in food-producing countries

  One of the long-term implications of continuously running a food stockpiling programme is the discouragement of food production diversity. Since only a handful of commodities are publicly stockpiled, most producers and farmers would find it safe to invest in and produce stockpiled crops/food as its sale would be guaranteed. When governments then try to encourage producers to focus on other equally important crops, producers are often reluctant to diversify their outputs.

- Losses and inefficiencies

  Food is a perishable good. Chances of losses during storage and stockpiling operations are extremely high. Many cases of stockpiling have repeatedly identified physical losses of food stocks. There are also other losses due to unaccountability and corruption, such as the "disappearance" of stocks and transportation losses.

- No guarantee of food security

  Maintaining and controlling physical food stocks do not guarantee food security for a country's population. This fact is often not accepted for political reasons. Some countries which maintain large volumes of public food stockpiles continue to suffer from chronic food insecurity due to a variety of reasons such as distribution problems, and the lack of clear operational guidelines and mechanisms.

International implications

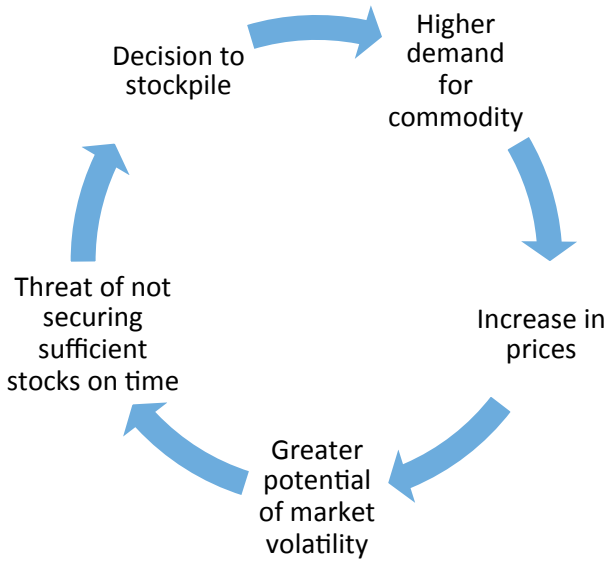
There are two different dimensions to the international implications of adopting stockpiling policies. The first and more direct implication is in terms of international trade. The second, more nuanced implication deals with the psychological impact of stockpiling.

- International trade and economics

  The decision to pursue stockpiling by an importing or exporting country automatically leads to an increased demand for the stockpiled commodity. This would directly affect the supply of and/or demand for the commodity in the international market. Stockpiling practices by any major importing or exporting country (for the purposes of domestic food security) would therefore lead to higher prices as well as higher chances of price volatility.

  Higher prices or price volatility in the international market will in turn further push for and justify stockpiling programmes, which again increases demand and price volatility. Eventually this becomes a vicious cycle that entrenches the need for even greater stockpiling (see Figure 1). This is dangerous for international market stability.

Figure 1. Potential vicious cycle of stockpiling policies



  Another potential problem of building up large stocks and reserves is that there might be a need to periodically off-load excess stocks as part of either storage rotation or due to sustained high levels of production. In such instances, particularly for exporting countries, stocks may be dumped onto the international market, which would lead to an artificial suppression of prices. While this could be seen as a boon for consumers, it could come at very high costs to producers and the long-term viability of a particular commodity.

- Psychological effects

The practice of stockpiling by importing countries is often a reaction to counter the perceived (or real) inefficiencies and failures of the international market to provide food. Stockpiling is thus perceived as a useful option to safeguard against supply and/or price disruptions or volatility. However one country's commitment to stockpiling or a decision to increase stockpiling levels can send a negative signal to the rest of the market. If the country's demand for a particular food commodity is large enough to create shocks in the supply-demand equilibrium, there is high potential for a cascading effect in world market psyche. This impact would be relatively greater from countries with larger populations as well as those that rely heavily on imports, compared to countries with smaller populations and less import dependence.

The first negative impact would be the perception of greater competition (due to demand pressure). Such perceived threats and risks can lead to panic in the world food market as was observed during the 2007-2008 food price crisis. Secondly, negative perceptions have the potential to start a "stocks race" especially among countries reliant on imports. In the medium- to long term, this would erode trust in the international trading system which would be detrimental to all countries that rely on international markets for their population's food security.

Lastly, most public food stockpiling programmes and policies tend to be guarded as state secrets with little or no concrete verifiable information available. This information gap and the cultivation of a culture of secrecy surrounding national food stockpiles result in unnecessary hostility, a lack of trust, and tensions in the international community. Such developments can have negative consequences for states and governments.

Most governments that choose to adopt public rice stockpiling do so mainly for domestic food policy purposes. While there are numerous important benefits that stockpiling policies can generate there are also major negative implications and risks which come with it; both domestically and internationally. A clear assessment of implications at all levels needs serious consideration with a proper cost-benefit analysis prior to the decision to pursue or change a public food stockpiling strategy.

General recommendations

In an earlier study, a series of recommendations were derived for countries choosing to adopt public stockpiling of food policies. It was noted that such policies need to be carefully considered given its costs, potential impacts on markets, as well as the necessity of addressing efficiency issues for effectiveness of humanitarian/emergency stockpiles.[23]

Listed below are some of the recommendations based on the research on current food stockpiling behaviour in the South and Southeast Asian regions conducted by the Centre for Non-Traditional Security Studies. The research was carried out between November 2013 and July 2015. Below are general recommendations for national/public entities that are currently pursuing public rice stockpiling policies or are considering starting (or revising) their policies.

General recommendations

- **Advocate close monitoring of stockpiling behaviour and policies of other countries in commodities of interest through data and information available in the public domain.** Potential sources of information include agricultural statistics, news reports, annual reports of concerned public/ private institutions, changes in national food policies which could impact stockpiling practices etc. Changes in policies might signal potential competition for a commodity. It can also signal transitions in international market dynamics (if stockpiling is done through importation) as a result of these changes.

- **Establish a regional public stockpiling data bank with high levels of accuracy and timely data.** It would be in the interest of all ASEAN countries to share such data since this develops trust among peers, and transparency minimises chances of panic and extreme price volatility in international markets.

- **Explore options towards the realisation of maintaining actual physical stocks** in regional stockpiling mechanisms to deal with disasters and emergencies (such as APTERR). Currently, such mechanisms do not have a successful track record and some point to the virtual nature of stocks as a critical factor. There are also issues surrounding governance and protocols. Any regional mechanism that deals with emergencies should therefore look into exploring the possibility of maintaining at least some physical stocks to be effective.

[23] For a more extensive discussion see, Caballero-Anthony et al. *Public Stockpiling and Food Security*. Singapore: RSIS, 2015.

- **Establish clarity in terms of stockpiling goals and objectives and institute clear operational guidelines in terms of procurement, storage, release mechanisms.** Often stockpiling policies have failed or have a bad track record when too many goals and objectives are sought from them. A lack of clarity in the objectives and purpose of a stockpiling policy usually creates more problems. For example, if the stockpile is purely for disasters and emergencies, then situations which can be considered as 'disasters' or 'emergencies' must be clearly defined and guidelines for activation and operation developed accordingly. Stockpiling polices with clearly defined guidelines have proven to be more successful.

- **Encourage greater private sector involvement in stockpiling for greater efficiency and transparency of stockpiling programmes.** It is advisable to include the private sector in the stockpiling programme to prevent dis-incentivising or unnecessary market distortions.

In conclusion, the practice of maintaining public stockpiles of essential food commodities has been a popular policy by many governments. Experience has shown that public stockpiles can help shield domestic markets in times of production shortfalls or global price hikes in the short-term. History has also shown that there are numerous challenges and implications of the public stockpiling of rice.

In pursuing public rice stockpiling policies, governments have to be aware of these challenges and adopt a system which allows for effective monitoring and governance of rice stocks. It is also important to fully assess and understand the long-term impacts of stockpiling on the food economy and food security goals. Lastly, while focusing on domestic food policies through strategies like public stockpiling, governments also need to be aware of the potential regional and global implications of their domestic policies.

Country Profiles

The following section will look at the practice of maintaining rice reserves and public rice stockpiling policies of six countries in the Asia Pacific region. This is largely based on the findings of fieldwork conducted in India, Indonesia, Malaysia, The Philippines, Thailand, and Vietnam. The section aims to provide an overview and snapshot of public stockpiling of rice in the respective countries.

India

Table 3: Public Stockpiling of Rice Snapshot

Total Population	1.28 billion (2014, estimate)				
Quantity of public rice stockpiles	**Total (in '000 mt), 2014**				
	Production	**Imports**	**Exports**	**Consumption**	**Public Stockpile**
	106,650	0	11,500	99,251	17,000
Public Stockpiling Authority/Institution	Food Corporation of India (FCI)				
Purpose of public stockpile	• Farmer subsidy/income • Legal obligation (National Food Security Act 2013) • Food safety net/food subsidy • Market/price stabilisation • Domestic supply stability				
Governance of stockpile	**Control**		**Name of Institution/Organisation**		
	Public		FCI, Ministry of Agriculture, CACP		
Dedicated infrastructure for stockpiles	**Facility**		**Numbers**	**Capacity (mmt)**	
	Warehouses (Covered) Cover and Plinth (CAP)		(not publicly available)	FCI owned: 15.65 Rented: 21.5	

Introduction

Not only does India have a long history of agriculture dating back at least 6000 years, it consistently has one of the highest agricultural outputs in the world and is the biggest producer of various crops and fruits. Although the contribution of agriculture to GDP has been declining steadily over the years it still accounts for close to 18 per cent.[24] The sector also still reports close to 50 per cent of total employment.[25]

Historically, India is one of the largest producers of rice. Over the last decade India has also emerged as one of the major exporters of other agricultural commodities. This is largely due to vast improvements and development in port facilities and infrastructure which have had a positive effect on exports, by reducing the cost of shipping. Secondly, production has been boosted by (i) opening up of new areas for the production of staple grains, and (ii) changes in cropping patterns and land-

[24] World Bank Data, 2014. http://data.worldbank.org/country/india (last accessed December 2015).

[25] Ibid, 2013

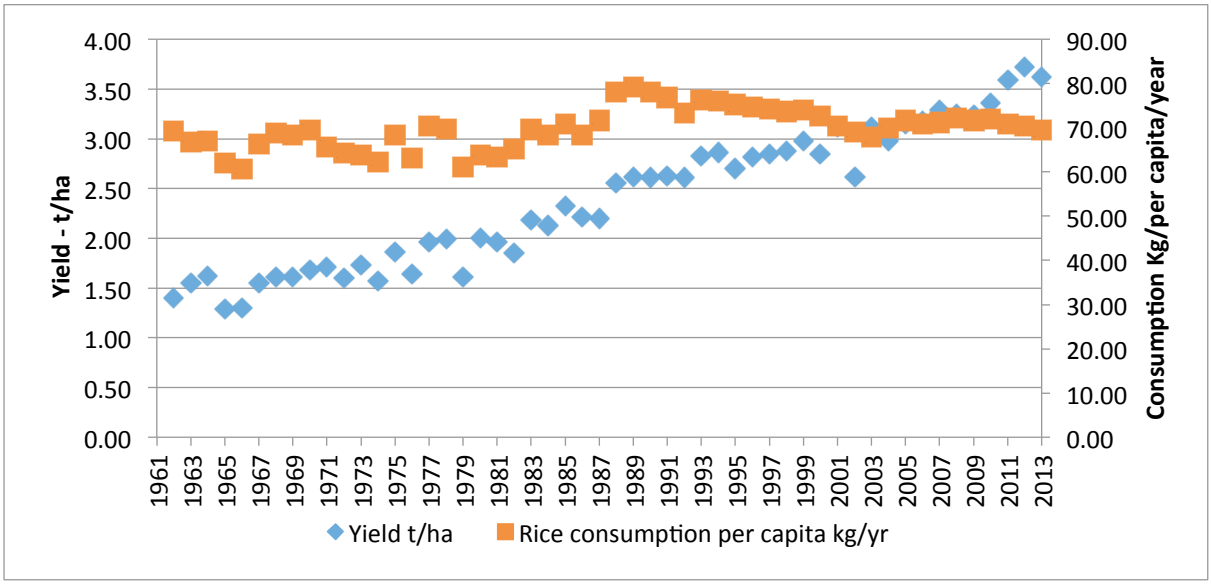
use which have resulted in greater yield per unit area of land. Both these factors have contributed significantly to production.[26]

India's dominant position in rice production and trade means food policy in India has implications for other parts of the world. The 2007-2008 price crisis revealed as much India's decision to stop exports of rice and wheat due to domestic food security concerns, to some extent, contributed significantly to the international panic which followed.

India has publicly stockpiled rice (and other grains) for over five decades now. India is the second largest producer of rice after China with slightly over 159 million tonnes produced in 2013.[27] India has also become the world's largest exporter of rice since 2012, consistently supplying approximately 10 million tonnes into the international market every year.[28]

India has been self-sufficient in rice since its independence in 1947. While production has not been an issue access to rice for its population has remained a major concern. As one of the major staple crops (along with wheat), rice has been stockpiled since the 1960s to try and better guarantee physical and economic access for its population, especially for those in the lower income brackets.

Figure 2: India Rice - Annual Yield and Production Per Capita



Source: FAOSTAT and USDA, 2014

[26] Interview with officer from Ministry of Agriculture, India, 18th Oct 2014, New Delhi

[27] FAO Data, FAOSTAT, 2014. http://faostat3.fao.org/home/E (last accessed December 2015)

[28] Rice Statistics Data, IRRI, 2014. http://ricestat.irri.org:8080/wrs2/entrypoint.htm (last accessed December 2015).

Historical Overview

Food self-sufficiency has been the cornerstone of India's food policy since independence in 1947. However the deficit between the minimum required food and supply remained until the 1960s. Up until then India imported both rice and wheat in varying amounts almost annually to supplement their production shortfall. This gap between demand and supply was successfully closed after the 1960s and into the 1970s, with the onset of the green revolution.

The approach to food security in India since its independence has been to boost domestic production and minimise import dependence. To achieve this, certain systems and institutions were established. These included the Commission for Agricultural Costs and Prices (CACP), Food Corporation of India (FCI) and the Public Distribution System (PDS) to better address food and nutrition concerns through ensuring stability of prices, creating incentives to boost domestic production, rationing of essential commodities, ensuring availability (especially for the poor and needy), and checking the practice of hoarding and black marketing.[29] The official practice of public stockpiling of grains (rice and wheat) started with these institutions.

Stockpiling of grains in India has historically been boosted by and is part of a number of policies. These include regulation of traders from exploitative marketing practices through the use of legal and regulatory measures such as licensing, levies, stocking limits and movement restrictions as well as fixing of minimum support prices (MSPs).[30] It is argued that all of these policies have contributed significantly to the increase in grain production which has managed to keep pace with population growth until the present.

As a federation of 28 state governments and seven union territories, India's food policy, particularly its stockpiling and distribution activities, are predominantly handled at the state level. The central government's role is in federal guidance on MSPs, distribution prices, administration mechanism and amounts per eligible persons. There are differences in mechanisms between states however, given the varying incomes and food situation at state level.

[29] Pangotra, Prem. "Public Distribution System in India." PhD diss., Indian Institute Of Management, Ahmedabad, 2010.

[30] Acharya, Shabd S. "Food Security and Indian Agriculture: Policies, Production Performance and Marketing Environment", Agricultural Economics Research Review 22, no. 1 (2009): 1-19.

Rationale for Stockpiling

The Food Corporation of India (FCI) was set up under the Food Corporation Act 1964 to fulfil a number of objectives. This has been done with the help of a stockpiling mechanism which it undertakes and oversees.

The FCI's objectives include[31]:

- Price support for farmers to help boost domestic production
- Distribution of food grains throughout the country through the PDS to ensure availability (food security stocks)
- Make food available at reasonable prices particularly for vulnerable sections of society (safety net stocks)
- Maintain strategic reserve to ensure supply during disruptions and emergencies (emergency reserve)
- Ensure reasonable domestic market prices through intervention when necessary (market price stabilisation).

Present stockpiling policy and practices

The size of the minimum public stocks to be maintained is determined every five years by an expert group[32] taking into account yearly fluctuations in production and government's commitment in providing subsidised food. The total amount of actual stocks at any given point in time may differ from the norm. This has largely been the case, for various reasons, such as market prices vis-à-vis the MSP, which influence how much the government would procure as the official buyer of last resort.

Procurement

The CACP announces the MSP for rice prior to planting seasons. Theoretically the MSPs are to be announced a year in advance of the harvests. The MSP is calculated taking into account the cost of production (inputs), demand and supply in local markets, international and domestic prices and

[31] Food Corporation India, www.fci.gov.in (last accessed December 2015).

[32] Some of the members of the Expert Group include officials from Ministry of Agriculture, the National Food Security Mission, Commission for Agriculture Costs and Prices, Food Corporation India, and the Ministry of Social Justice and Empowerment.

impact of prices on consumers. Once the harvesting is complete there are two mechanisms under which rice and wheat is procured by the government.

First is through direct purchase from the farmers.[33] This involves the farmers themselves or traders who have purchased at the farm-gate taking the grains to organised wholesale markets (also known as *mandis*) or to procurement centres. FCI, which conducts the procurement on behalf of the government, is ready to purchase whatever amount at the MSP, provided the grains are of a minimum standard quality.

The second procurement channel is purchasing rice from millers.[34] Millers are required to sell a fixed percentage of their output to the respective state governments at a statutory price. The statutory price, also known as the levy price, is calculated by factoring in milling costs and a modest margin on top of the MSP. The percentage of grains procured from this levy system fluctuates, at present it is estimated to be between 30-40 per cent.

Government procurement as a share of total production is another figure which fluctuates. In the 1980s and 90s, it was in the region of 10 to 15 per cent. Since 2007-2008 this has increased to above 30 per cent. This change explains the massive stock build up in India.

Public Distribution System (PDS) and release mechanism

Distribution of government procured rice to domestic consumers is undertaken through the PDS. The rice procured by FCI is sold to state governments at an administered price called the central issue price (CIP).[35] The state governments then distribute the stocks to public through fair price shops. The discounted price for rice sold at the fair price shops is determined by each state government.[36]

The price of rice at fair price shops are consistently lower than government's cost of procurement as well as the costs of, for example, transport and storage. The government thus loses money on every

[33] Interview with officer from Ministry of Agriculture, India, 18th Oct 2014, New Delhi

[34] Ibid.

[35] Ibid.

[36] Ibid.

single kilogramme of rice it sells through the PDS. The total aggregated loss that this incurs is considered India's "food subsidy".[37]

The National Food Security Act (NFSA) 2013 has now made it a legal compulsion of all state governments to provide at least 5 kilogrammes of rice at Rs. 3/kg (6.3 cents SGD), per month, to all beneficiaries.[38] The NFSA covers approximately two thirds of India's total population of 1.2 billion. This means the government of India will need to procure, stock, and distribute sufficient food to fulfil this legal obligation on an even larger scale than in the past.

Storage

The government releases targets on minimum stock positions, or also referred to as buffer norms, to be maintained every quarter (1st January, 1st April, 1st July, and 1st October) in every year.[39] These are stocks required for public distribution and open market sale to stabilise prices. Actual stock quantities have often varied and are in general much higher than the set norms.

The FCI also holds additional stocks to ensure food requirements in case of crop failure or unacceptable food price inflation. After the experience of wheat crop failure in 2006 and the global food price crisis of 2007-2008, FCI now also maintains a separate strategic reserve of food. This is referred to as the food security reserve which consists of two million tonnes of rice and three million tonnes of wheat.[40]

A consistent increase in public stocks of rice (and wheat) has been observed since 2007-2008 in India. This increase in stocks has put pressure on available storage capacity. A portion of the public stocks is held by and within states. For stock owned by FCI the storage is spread between facilities it owns (approx. 15mmt), and rents from private sector, state agencies and Central Warehousing Corporation (approx. 20mmt).[41]

Storage of public food is a mix of warehouses for bagged grains (which constitutes the majority) and some silos. The FCI also maintains outdoor storage which is covered with tarpaulin or similar water-

[37] Kubo, Kensuke. "India: The burden of domestic food policy." Shigetomi, S., Kubo, K., Tsukada, K., & Shigetomi, S.(2011). The world food crisis and the strategies of Asian rice exporters. Chiba-Shi, Japón, Institute of Developing Economies, IDE-Jetro (2011).

[38] Interview with officer from Food Security mission, Ministry of Agriculture, India, 21st Oct 2014, New Delhi

[39] Food Corporation India, www.fci.gov.in (last accessed December 2015).

[40] Interview with officer from Food Security Misson, Ministry of Agriculture, India, 21st Oct 2014, New Delhi

[41] Ibid.

proof sheets (also known as Cover and Plinth or CAP). It was estimated that some four million tonnes of food was stored in this manner in 2011/12.[42]

Table 4: Buffer stocking norms (in mmt)

	Rice				Wheat				Total (Wheat+Rice)			
Period	Jan	April	July	Oct	Jan	Apr	July	Oct	Jan	April	July	Oct
1991-1998	7.7	10.8	9.2	6	7.7	3.7	13.1	10.6	15.4	14.5	22.3	16.6
1999-2004	8.4	11.8	10	6.5	8.4	4	14.3	11.6	16.8	15.8	24.3	18.1
Up to 2005	8.4	11.8			8.4	4			16.8	15.8		
w.e.f. 20.04.2005	11.8	12.2	9.8	5.2	8.2	4	17.1	11	20	16.2	26.9	16.2
w.e.f. 22.01.2015	5.61	11.58	11.54	8.25	10.8	4.46	24.58	17.52	21.41	21.04	41.12	30.77

Source: FCI, 2015

Recent trends and emerging issues

The significant stock build-up of rice in India since the global price crisis of 2007-2008 suggests clearly that availability and production capability are not problems for India. With approximately 50 million tonnes of grains in warehouses, supply is certainly not a constraint.[43] The bigger concern has to do with accessibility and affordability of food for the vast majority of the population who live below the poverty line.

The government of India is strongly committed to maintaining large stocks on an annual basis as way to combat chronic food insecurity in the country. The passing of the National Food Security legislation has set the legal basis for continuation of stockpiling in India.[44] There are already a host of issues facing India with regards to its stockpiling policy. Some of these are summarised below.

[42] McCreary, Ian. "Food reserves in India." Report for the Canadian Foodgrains Bank. Winnipeg, Canada (2012).

[43] Interview with officer from Food Security mission, Ministry of Agriculture, India, 22nd Oct 2014, New Delhi

[44] The National Food Security Act, 2013 (also Right to Food Act) is an Act of the Parliament of India which aims to provide subsidised food grains to approximately two thirds of India's 1.2 billion people.

Fiscal costs and losses

The fiscal burden on the government to maintain and run their stockpiling programme is significant. For year 2013-14, the total cost of food subsidy (consumer subsidy + stocking costs) was 894.92 billion rupees (approx. SGD 18.8 billion).[45] This worked out to amount to approximately 16 per cent of the national budget for the year.[46]

The cost of stockpiling and the total food subsidy in India has continued in an upward trend since the early 2000s. One of the main reasons for this has been the steady increase in MSP and market prices of both rice and wheat, over the years, while the CIP has remained the same since 2002. This has led to a significant widening of the gap translating into costs.

The introduction of the NFSA also means that maintenance of public stocks to subsidise close to 800 million people will continue to keep the costs high. The costs associated with the transportation and movement of food grains across the country will also continue to increase. In terms of storage, FCI has started calling for tenders for the construction of grain silos and storage facilities.

Losses incurred by the stockpiling programme in India are broken into two separate categories; transit losses and storage losses. For 2013-14 the total amount of grains lost in transit/transportation amounted to approximately 245,000 tonnes estimated at 4.76 billion rupees (approx. SGD100 million). While storage losses were recorded at 187,000 tonnes valued at 4.37 billion rupees (approx. SGD 92 million).[47]

Operational Challenges

The wide range of objectives and goals the FCI and its stockpiling programme are expected to achieve is not only a tall order but often times can be in conflict with one another. For example one challenge which has been faced in the past and could potentially crop up in the future is the dilemma between maintaining certain amount of stocks for public distribution and releasing stocks to stabilise market prices and food inflation. The potential for such scenarios justifies the need for holding larger amounts of stocks than necessary.

[45] Food Corporation India, Annual Report 2013-14. http://dfpd.nic.in/writereaddata/images/pdf/ann-2013-14.pdf (last accessed December 2015).

[46] Government of India Statistics, 2014. http://www.indiastat.com/agriculture/2/stats.aspx (last accessed December 2015).

[47] Food Corporation India, Annual Report 2013-14, op. cit.

Indonesia

Table 5: Public Stockpiling of Rice Snapshot

<table>
<tr><td>Total Population</td><td colspan="5">253 million (2014, estimated)</td></tr>
<tr><td rowspan="3">Quantity of public rice stockpiles</td><td colspan="5">Total (in '000 mt), 2014</td></tr>
<tr><td>Prod</td><td>Imports</td><td>Exports</td><td>Consumption</td><td>Public Stockpile</td></tr>
<tr><td>36,300</td><td>1,250</td><td>0</td><td>38,600</td><td>Approx 3,000</td></tr>
<tr><td>Public Stockpiling Authority</td><td colspan="5">Badan Urusan Logistik / Bureau of Logistics (BULOG)
Ministry of Agriculture (MoA)</td></tr>
<tr><td>Purpose of public stockpile</td><td colspan="5">• Emergency/disaster reserve
• Farmer subsidy
• Market/price stabilisation
• Domestic market supply stability
• Safety net</td></tr>
<tr><td rowspan="3">Present Stockpile Mechanism</td><td colspan="2">Emergency Stockpile</td><td colspan="3">300,000mt(BULOG)
56,000mt (MoA)</td></tr>
<tr><td colspan="2">Buffer Stock</td><td colspan="3">300,000mt</td></tr>
<tr><td colspan="2">RASKIN</td><td colspan="3">3 million tonnes (average since 2008-2013)</td></tr>
<tr><td rowspan="2">Dedicated infrastructure for stockpiles</td><td colspan="2">Facility</td><td colspan="2">Numbers</td><td>Capacity</td></tr>
<tr><td colspan="2">Warehouses</td><td colspan="2">1,500</td><td>Approx. 4 million tonnes</td></tr>
</table>

Introduction

Indonesia is the largest country in Southeast Asia both in terms of territory and population. It is the world's third largest producer of rice, after China and India.

Indonesia has been considered a leader in the agricultural revolution which swept through East and Southeast Asia since the 1960s. Currently the sector still employs close to 40 per cent of the country's work force. The agriculture sector comprises of large plantations (private sector and state-owned) as well as smallholder production modes.

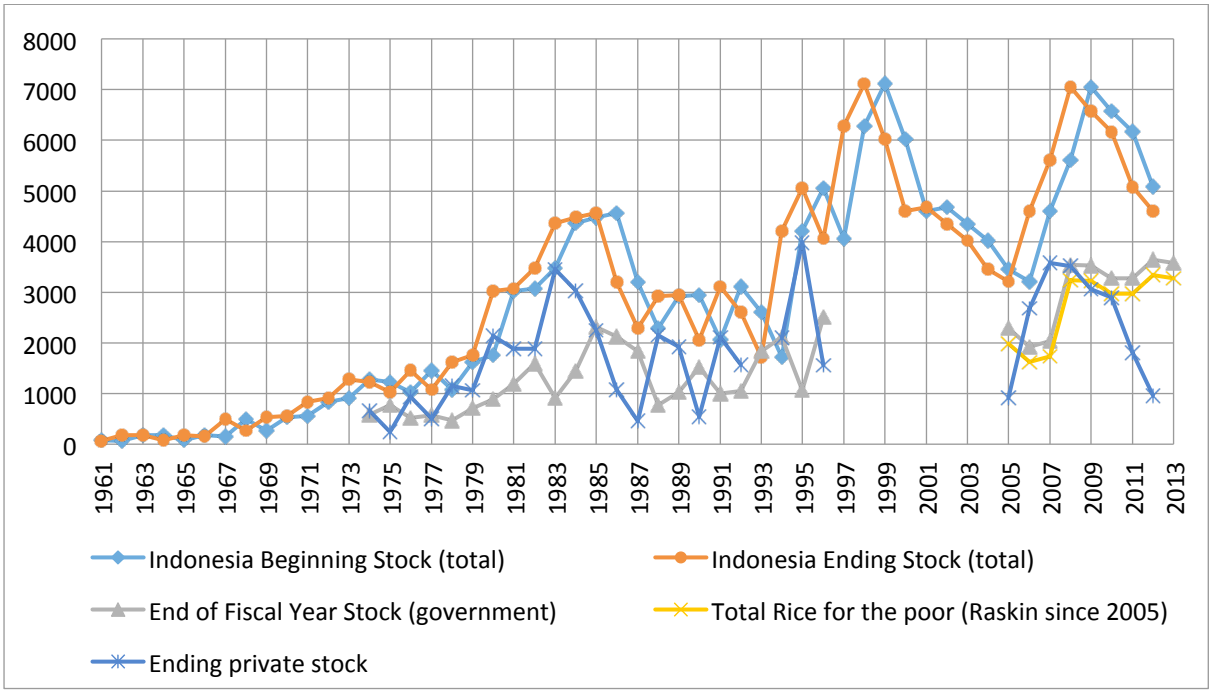
Large plantations are geared towards export commodities like palm oil and rubber. Smallholder farms are more focused on the production of rice, soybeans, corn, fruits and vegetables. The

Indonesian government has recently placed strong attention on achieving self-sufficiency in a number of food commodities like rice, soybeans, corn and sugar.

Indonesia has stockpiled rice for three main purposes: (i) to ensure adequate income for farmers, (ii) to ensure adequate stock of rice to control prices for ensuring access for poorer consumers, and (iii) to provide highly subsidised rice to the poorest in society as part of the government's Public Social Obligation (PSO) programme. This last "rice for the poor" programme is called RASKIN which is run by BULOG and was started in 2005.

Indonesia's stockpiled rice originates from two sources; domestic procurement and imports. Ideally BULOG aims to procure its entire stock from the domestic market but resorts to importation when there is a shortfall in local production. BULOG intervenes in the domestic market by releasing rice when prices are too high, through wholesalers and local markets. Direct selling and distribution of stock by BULOG only happens through the RASKIN programme which is reserved for the "most poor" as defined by the criteria of the National Welfare Ministry and the Vice President's Office.

Figure 3: Indonesia Rice Stockpile Trend (in '000 mt)



Source: BULOG Data, TN2PK 2014 and USDA, 2014

Historical Overview

Rice has been an extremely important commodity for Indonesia since colonial times. The Dutch administration exerted tight control on the distribution of rice from surplus to deficit regions during their rule in order to manage local prices and ensure supply stability.[48] This trend continued post-independence and rice policy has remained central to Indonesia's political economy since.

Control and stabilisation of rice price has been seen as "the barometer of the economic situation in Indonesia", and has thus been highly politicised.[49] It was with this awareness that Indonesia's central food authority, BULOG, was founded in 1967 under the newly established Suharto regime, and directly under the control of the President's office. The terms of reference for the institution was on two levels: (i) stabilisation of rice prices and, (ii) provision of monthly rice rations to the military and civil service.[50]

BULOG has managed rice price stabilisation through the use of floor prices for farmers and defending a ceiling price in the markets. It has always considered importation of rice as a last resort, yet Indonesia has been a major importer of rice for most years since 1970s, except in the mid-1980s when it achieved self-sufficiency. BULOG has therefore been a state monopoly in importation of rice into Indonesia.

The practice of public stockpiling of rice has been seen as a success as its contribution towards rice price stabilisation, especially from the late 1960s to 1980s, has been significant.[51] However, its effectiveness, from a cost-benefit analysis perspective, deteriorated over time. This is largely due to large accumulation of stocks, storage and transportation expenses, as well as corruption, especially during Indonesia's self-sufficiency years in the 1980s (1982-85).[52]

Starting in the 1990s, there were calls for reforms and re-evaluation of the stockpiling programme. This was driven largely by an overall direction towards greater decentralisation and the need to

[48] Timmer, C. Peter, T. W. Mew, D. S. Brar, S. Peng, D. Dawe, and B. Hardy. "Food security and rice price policy in Indonesia: the economics and politics of the food price dilemma." In Rice science: innovations and impact for livelihood. Proceedings of the International Rice Research Conference, Beijing, China, 16-19 September 2002., pp. 777-788. International Rice Research Institute (IRRI), 2003.

[49] Ibid. p.781

[50] Ibid.

[51] Dawe, David. "Macroeconomic Benefits of Food Price Stabilization." Indonesian Food Journal 6 (1995): pp. 43-64.

[52] Ibid.

design a more market-oriented price policy.[53] This direction was further bolstered after the 1997-1998 financial crisis in the region.

During the 1997-1998 crisis, Indonesia was hit hard both economically and politically. During this difficult period BULOG lost control of domestic rice prices in mid-1998. In the aftermath of the crisis, as a result of pressures from domestic politicians and foreign donors, BULOG was stripped of its monopoly over rice importation as well as its mandate to stabilise rice prices.

Present Food Reserve Policy and Practices

In the years following the Asian financial crisis, BULOG, stripped of its mandate, changed to an agency in charge of procurement and distribution of highly subsidised food to the poor under the "rice for poor" or RASKIN programme started in 2005.[54] Since the international food price crisis of 2007-2008, BULOG once again became an important actor in Indonesia's food policy, especially for rice.

The reasons which justify public food stockpiling policies in Indonesia include

a) To increase food production in order to meet domestic demand
b) To increase farmers' incomes
c) To ensure availability of sufficient food supplies/stocks
d) To ensure affordability and economic access of stockpiled food commodities
e) To ensure nutritional status of the people (particularly those living below the poverty line)[55]

RASKIN programme

Rice stocks dedicated for the RASKIN programme has averaged around 3 million tonnes per year since 2008. In 2013, the government stockpiled and distributed at least 3.3 million tonnes to the poor (compared to 3.2 million tonnes in 2008). The total number of households being targeted by the programme was 15.5 million in 2013. This is a reduction from the 19.1million in 2008.

[53] Timmer, C. Peter. "Building efficiency in agricultural marketing: the long-run role of BULOG in the Indonesian food economy." Journal of International Development 9 (1997): 133-146.

[54] Interview with Former Deputy Head of Bulog- Solo, 8th Sept 2014, Jakarta.

[55] BULOG Presentation delivered at the ASEAN Regional Workshop on the Role of Rice Reserve Agency in Strengthening National and Regional Food Security, 8 May 2009, Jakarta, Indonesia.

The stocks for RASKIN is procured at market price and sold at a subsidised price of SGD1.6/kg. So far, the poor (defined by seven criteria based on data from National Welfare Ministry and the Vice President's Office) are the only group who purchase rice directly from BULOG.[56]

Stockpile infrastructure and logistics

BULOG currently has 1,500 warehouses spread across 33 provinces. The total storing capacity at present is about 4 million mt. BULOG does not yet have modern storage infrastructure like silos, as it considers them not proper for tropical climatic conditions.

Close to 90 per cent of the stocks is dedicated for RASKIN. Currently upgrades (materials used, aeration technology, and integrated pest control) are happening in warehouses to modernise facilities and reduce storage losses. In terms of transportation of public rice stocks, BULOG does not control the entire supply chain. Private transportation companies are involved in the shipping of rice both internationally and locally.

Local level rice stockpiling

One of the recent developments in rice reserve policy has been the Ministry of Agriculture (MoA) directive 2012, which was drafted together with Ministry of Internal Affairs and Ministry of Trade. According to this directive, local governments are now encouraged to procure and maintain reserve stocks through their own means and at their own costs. This is seen as being in line with the existing Food Law (18/2012) which emphasises the concept of shared responsibility between local and national governments in ensuring national food security.

As per current practice, the central government through the MoA provides heads of local districts with special funds to be used according to their discretion for the purposes of ensuring food security. This fund can thus be used to (i) build or maintain warehouses, (i) procure of rice, (iii) invest in local infrastructure, as well as (iv) procure and build up of their own reserve rice stocks.[57] This directive was drafted in consultation with local governments across Indonesia.

This rice from the local reserve can be "borrowed" by any member of the community as and when in need. A similar amount will have to be returned with an additional amount designated as a service charge or as interest. The actual amount of the "service charge" will be decided by the community.

[56]Interview with Former Deputy Head of Bulog – Solo, 8 Sept 2014, Jakarta.
[57] Interview with Former Deputy of Ministry of Agriculture, Indonesia, 11 Sept 2014, Bogor.

Governance of Stockpile challenges

BULOG has experienced high levels of corruption at the national level in the past. The decision in terms procurement for BULOG is under the directive of Ministry of Trade. BULOG needs to seek approval from the ministry before it acts. This is in terms of procurement from the international market, or for the release of stocks to stabilise domestic prices.

Stockpile as a strategy for emergencies

BULOG maintains disaster management contingency stocks of 100 tonnes per district and 200 tonnes per province. These stocks can only be activated during an emergency. This 100 tonnes/district can be released upon the issue of an official letter from the local Social Welfare Department.

There is at least 56,000 tonnes of rice set aside for disasters across Indonesia, under the direct control of the Central Government and managed with its budget. The total government rice reserve is 300,000 tonnes) which is used for price stabilisation and natural disaster response (this is separate from the RASKIN reserves). Given the scale and size (population) of the country, some argue that this figure is too low and the ideal stock level should be closer to 1 million tonnes.

Issues and areas of concern for current stockpiling programme

There are a number of concerns surrounding Indonesia's rice stockpiling policy. On the one hand there are concerns that its current stockpiling policies are inefficient and thus should be reviewed. On the other, there are opinions that the stockpiling policies do not go far enough and should be further bolstered moving into the future.

Despite the move by the Indonesian government to look more closely into food security, especially of the growing urban poor, opinions are divided. In terms of rice stockpiling, there are now two separate initiatives to maintain stockpiles, (i) BULOG still continues to control large amounts of stock centrally, and (ii) the MoA's move to encourage local level stockpiling. Though potentially offering the benefit of having sufficient stocks managed at the central and local levels, the dual mechanism does pose a risk for duplication of effort and costs involved in maintaining and operating the stocks.

Malaysia

Table 6: Public Stockpiling of Rice Snapshot

Total Population	30 million (2014) estimated				
Quantity of public stockpiles	**Total (in '000 mt), 2014**				
	Production	**Imports**	**Exports**	**Consumption**	**Public Stockpile**
	1,800	950	0	2,750	292
Public Stockpiling Authority/Institution	Padiberas Nasional Berhad / National Rice Corporation (BERNAS)				
Purpose of public stockpile	• Emergency/disaster reserve • Farmer subsidy • Market/price stabilisation • Domestic market supply stability				
Governance of stockpile	**Control**		**Name of Institution**		
	Public/Private		BERNAS, Ministry of Agriculture and Agro-Based Industries (MoAAI)		
Dedicated infrastructure for rice stockpiles	**Facility**		**Numbers**	**Capacity (in '000 mt)**	
	Warehouses		44	(not publicly available)	

Introduction

Malaysia has been a net importer of rice since the 1960s. Malaysia's rice stock data suggests that it has managed to control its rice imports from a per capita basis over the last 30 years, notably since the end of 1970s.[58] This has largely been due to improvements in its rice production through technological and scientific innovations.[59] This has happened despite reductions in cultivated land over the years as a result of development and pressure for alternative uses.

At present, rice is grown on 400,000 hectares of land in Malaysia. There is however an average annual short fall of approximately 0.8 – 1.4 million tonnes of rice. This deficit therefore has to be

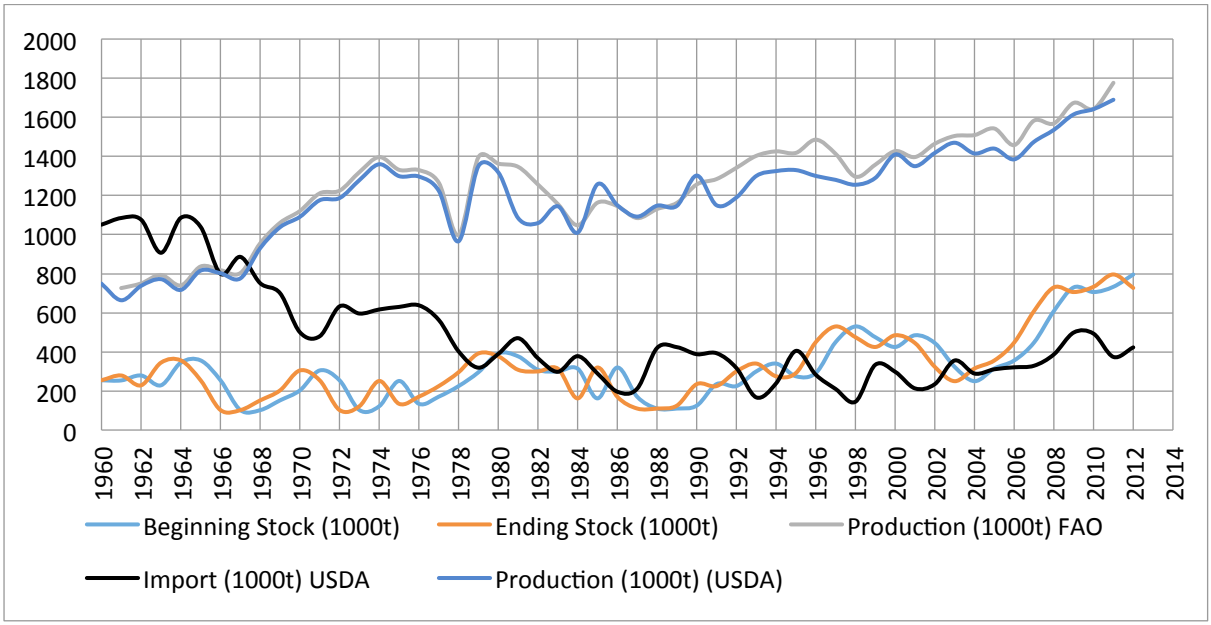
[58] Daño, Elenita C., and Erna D. Samonte. "Public sector intervention in the rice industry in Malaysia." State intervention in the rice sector in selected countries: Implications for the Philippines (2005): pp. 187-216.

[59] Ibid.

procured from international markets.[60] Setting realistic targets for rice self-sufficiency at 65 per cent, Malaysia still has to rely heavily on imports to meet the gap.

FAO and USDA data show that the country has continued to increase its production over the last 20 years which has allowed the government to increase its publicly held rice stocks, now mostly through domestic procurement.

Figure 4: Malaysia rice production, imports and stocks (in '000 mt)



Source: FAO and USDA 2014.

[60] Interview with official from Strategic Planning and International Division, MoAAI, 24th Sept 2014, Kuala Lumpur

Historical overview

Though rice has been the staple crop of the Malay people throughout history, with the onset of colonialism it was perceived that Malaysia (then Malaya) did not have a comparative advantage in terms of growing food crops and commodities. Attention was thus diverted towards the cultivation and production of commercial crops. To some extent intentions to invest in and cultivate commercial crops rather than food crops persisted even after independence.

Rice has nonetheless been consistently regarded as a strategic sector and has been accorded special treatment by the government.[61] The formation of dedicated institutions to oversee the rice sector over the years highlights the commodity's importance.[62] These include the Rice Cultivation Committee (1931), Rice Commission (1933), the Federation of Malaya Rice Committee (1956), Padi and Rice Marketing Board (1967), National Padi and Rice Board (1971) and finally BERNAS (1994).

The country's rice policy has historically been centred on three main objectives.

a. Ensuring food security (physical access)
b. Raising farmer income and productivity
c. Ensuring affordable food to consumers at fair and stable prices.[63]

Based on these three objectives, the government of Malaysia has always considered maintaining some level of self-sufficiency as a matter of security despite the economic costs for the country.[64] Though self-sufficiency levels have rarely ever been 100 per cent, the government believes that some level of self-sufficiency is necessary to reduce dependence on international markets. It has often dedicated vast amounts of public capital on infrastructure development as well as in subsidies in attempts to boost production and increase levels of self-sufficiency.

The El-Nino event affecting Southeast Asia as well as North America in 1973 which led to a global food crisis[65] is seen as a major turning point in Malaysia's food policy. Due to price volatility, overall high prices, and difficulty in obtaining stocks in international markets, private importers stopped importing rice. As a response and last measure, the government had to intervene in the market, with

[61] Daño, Elenita C., and Erna D. Samonte. 2005. op.cit.

[62] Ibid.

[63] Ibid

[64] Interview with Strategic Planning and International Division, MoA, op. cit.

[65] For more details on this, refer to Daño, Elenita C., and Erna D. Samonte. 2005. op.cit.

the Lembaga Padi dan Beras Negara (LPN) given a greater role by being tasked to look into securing the necessary rice.[66]

LPN was given the sole right to import rice in Malaysia in 1974. Prior to 1974, importation of rice into Malaysia was conducted on a "quota basis" through private importers.[67] However during the crisis when LPN got involved, supply was secured on a government to government basis. Even though the international prices of rice returned to normal quickly, LPN continued to remain the sole authorised importer of rice in Malaysia. This was an additional task for LPN on top of its existing role to support domestic rice production and rice farmers. LPN continued its role in overseeing Malaysia's rice policy which included the use of buffer stocking and stockpiling since its establishment in 1971 up until the early 1990s. In July 1994, LPN was privatised as part of broader reforms in Malaysia to become Padiberas Nasional Berhad (BERNAS).

The corporatisation (1994) followed by the privatisation (1996) and finally public listing (1997) of BERNAS was in efforts to make the national stockpiling programme efficient and profitable. All properties, rights, and liabilities of LPN were transferred to BERNAS. The latter institution was also required to undertake all duties and social obligations of LPN on behalf of the Malaysian government. The regulatory role of the LPN was however transferred to the Ministry of Agriculture.

The first real test for the newly instituted BERNAS came during the Asian financial crisis. During the crisis the price of rice doubled as a result of a devaluation of the Malaysian Ringgit (while the price of rice in international markets is always denominated in US dollars). BERNAS was able to keep the domestic prices relatively stable by absorbing most of the price increase.

In 2008, despite the costs of imported rice reaching record highs, BERNAS managed to shield the domestic market by keeping prices of both local and imported rice constant at 2007 prices. Price of rice spiralled upwards in Malaysia in early 2008, however BERNAS reacted quickly with measures like adopting a ceiling price for consumers, increasing guaranteed minimum price (GMP) for farmers and sacrificing its 2008 profits to keep prices stable in domestic markets.[68] This resulted in rice prices coming down and stabilising by second half of 2008, even though it remained higher than pre-crisis levels.

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[66] Interview with Professor from Institute of Agricultural & Food Policy Studies, UPM, 23 Sept 2014, Kuala Lumpur

[67] Daño, Elenita C., and Erna D. Samonte. 2005. op.cit.

[68] Ibid

Present Food Reserve Policy and Practices

Since the mid-90s BERNAS has been in charge of Malaysia's rice stockpiling programme. As part of the privatisation and subsequent corporatisation deal, it currently undertakes a number of non-commercial activities in the interest of consumers. These include stabilisation of rice prices in the market, ensuring sufficiency of rice stocks, and maintaining the quality and standard of rice in the market.

Though BERNAS is essentially a corporate entity and a public listed company, the Malaysian Government retains 51 per cent of the share in the organisation and thus maintains controlling interest. However the operation costs are its own and does not have an allocation of the national budget or receives grants from the government as was the case with LPN.

Rationale for public stockpiling

Based on these roles of BERNAS it can be deduced that the rationale for maintaining national stockpile of rice in Malaysia is for:

a) Ensuring farmer incomes
b) Ensuring stability in food supply for consumers
c) Market price stabilisation
d) Distribution/procurement of food in times of emergencies

Stockpiling targets

BERNAS builds its stocks through procurement from both domestic market and from imports. Up until the food price crisis of 2007- 2008, the minimum stockpile held by BERNAS was 92,000 tonnes. Since 2008, this has been revised to 292,000 tonnes. BERNAS manages around 44 warehouses across the country to store and maintain its stocks. Both the BERNAS warehouses and mills are used to facilitate distribution of both imported and locally produced rice to wholesalers and some directly to consumers.[69]

In 2008, the government announced that BERNAS would significantly increase the size of the national buffer stock at any cost. In mid-January 2008 it was announced that BERNAS' stock levels would be increased from 92,000mt to 550,000mt which in theory extended its reserve stocks from 14 days to 90 days of consumption. However, after further review and consideration, and once the crisis subsided, it was revised down to 292,000 tonnes (estimated 45 day supply) of rice.

[69] Daño, Elenita C., and Erna D. Samonte. 2005. op.cit.

In terms of /buffer stocks, Malaysia plans to stockpile 4 months' supply of rice.[70] Stocks here would include BERNAS, private and household stocks. One crop cycle for rice is on average 3 months. The 4 months buffer would give authorities enough time to look for alternative sources and secure stocks, should they be required .[71]

The Mechanism

BERNAS aims to procure its stocks from domestic farmers through BERNAS rice mills. However most of the stock dedicated for national stockpile is said to come through importation. The 292,000 tonne stockpile is not kept centrally at one location but is distributed to strategic locations around the country.

In terms of domestic procurement, BERNAS procures paddy from local farmers at market prices (which are usually higher than GMP). Majority of this procurement happens through BERNAS owned rice mills.[72] The 32 BERNAS owned rice mills compete with other private rice mills (close to 400) for local paddy.[73] On average BERNAS mills processes 400,000 tonnes of paddy every year, giving them a market share of 35-50 per cent.[74] .

International procurement meets the deficit of domestic production. Most of the rice is sourced from Thailand, Vietnam and Pakistan. There have been attempts to diversify sources since 2008 to mitigate against (i) weather related production risk and (ii) high dependence on a single source. It was a bitter and harsh experience in 2008 when Thailand's prices for rice exports increased by close to 300 per cent. This underscored the importance of the need to diversify.[75]

[70] Interview with Official from Ministry of Agriculture, 24th Sept 2014, Kuala Lumpur

[71] Ibid.

[72] Wong, Larry CY, Suraya A. Emrus, Bashirah Md Bashir, and John YS Tey. "Malaysian Padi & Rice Industry: Applications of Supply Chain Management Approach." In National Rice Conference Swiss Garden Golf Resort Lumut, pp. 28-30. 2010.

[73] BERNAS, 2015. http://www.bernas.com.my/index.php/2014-06-27-15-49-00/2014-06-27-15-49-1 (last accessed December 2015).

[74] Ibid

[75] Interview with Official from Ministry of Agriculture, 24th Sept 2014, Kuala Lumpur

Issues and areas of concern

The experience of 2007-2008 was significant for Malaysia. This experience significantly eroded trust in international markets and has thus led to the revision of stockpiling targets.

Some of the cited challenges in reducing dependence on imports for stockpiling include (i) aging farmers, (ii) small man to land ratio, (iii) land conversion issues, (iv) increasing incidences of pest and diseases, and (v) the high dependency of farmers on subsidies. These negatively impact production. As a result Malaysia has had little success in significantly ramping up its production capacity.

With greater reliance on imports, the risk of international price volatility increases significantly. Should the government continue to try and stabilise local markets and prices in times of international uncertainty and higher sustained prices, there would be direct losses for BERNAS. As an institution answerable to shareholders with a purpose to generate profits and returns, this could be seen as problematic.

Future challenges and directions

Increasing costs of stockpiling

Malaysia finds itself in a difficult predicament with regards to stockpiling rice. On the one hand it is acutely aware of the rising social and economic challenges towards increasing its rice production to greater self-sufficiency levels. On the other, it has little trust and faith in international markets and its government to government rice importation mechanism it has relied on for decades prior to the 2007-2008 experience.

On average, it is estimated to cost approximately RM 2,400 (approximately SGD 810) to plant one hectare of paddy, factoring in all input costs.[76] This coupled with the ever increasing levels of subsidies given to rice farmers, would make the total cost of national stockpiling significantly high. The total cost to run these subsidy programmes is approximately RM1bln/year (approximately SGD 340 million). This includes subsidies for farmers and millers. The subsidy for millers is to incentivise them to mill all types of rice.[77]

[76] Interview with official from Strategic Planning and International Division, MoA 24th Sept 2014, Kuala Lumpur

[77] Interview with Professor from Institute of Agricultural & Food Policy Studies, UPM, 23 Sept 2014, Kuala Lumpur

The Philippines

Table7: Public Stockpiling of Rice Snapshot

Total Population	100 million (2014 estimated)				
Quantity of public stockpiles	**Total (in '000 mt), 2014**				
	Production	**Imports**	**Exports**	**Consumption**	**Public Stockpile**
	11,880	1,800	0	13,200	550
Public Stockpiling Authority/Institution	National Food Authority (NFA)				
Purpose of public stockpile	• Emergency/disaster reserve • Farmer subsidy • Market/price stabilisation • Domestic market supply stability • Safety net				
Governance of stockpile	**Control**		**Commodity**	**Name of Institution**	
	Public		Rice	NFA	
Present Stockpile Mechanism	**Emergency Stockpile**		15 days national demand = approx. 475,000 mt		
	Buffer Stock Strategic Rice Reserve (SRR)		30 days national demand = approx. 950,000 mt [inclusive of 15 days emergency stockpile]		
Dedicated infrastructure for stockpiles	**Facility**		**Numbers**	**Capacity (in '000 mt)**	
	Warehouses		366	Approx. 2,200	

Introduction

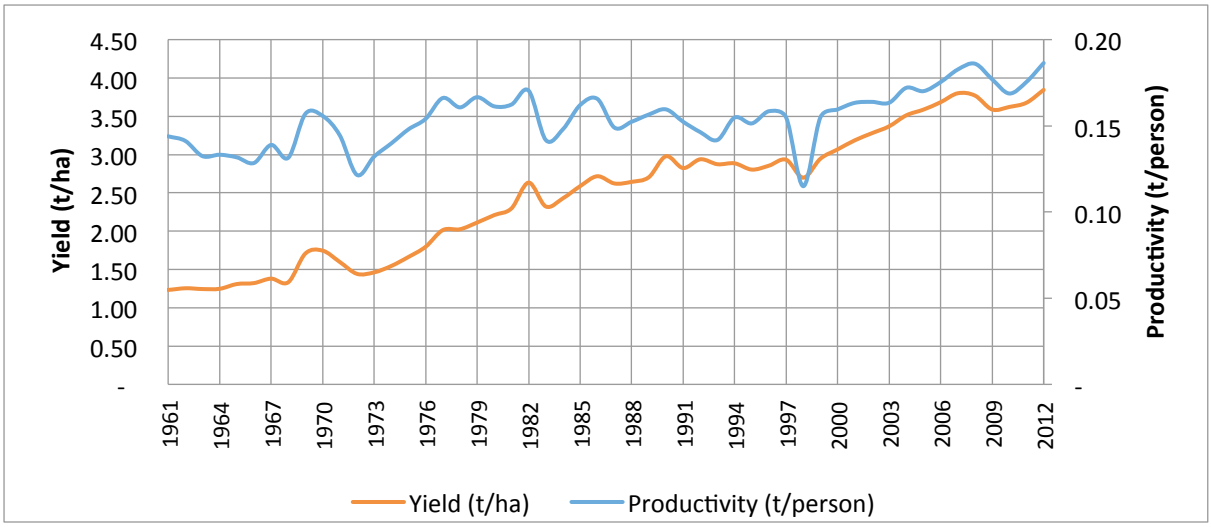
The agriculture sector represents a major part of the Philippines economy. It accounts for close to 12 per cent of the national GDP and employs approximately 47 per cent of the national workforce. Rice, corn, sugar, coconuts, and fruits constitute some of its main food and commercial crops.

Rice is the primary staple crop produced and continues to dominate the agricultural food crop sector. One-third of the country's farmers are engaged in rice production, mostly still on a subsistence basis and more than 60 per cent of agricultural investment is spent on rice production.

The Philippines is one of the world's top 10 producers of rice. However its production capacity has not been able to meet domestic demand in decades and thus Philippines has consistently been one of the top three rice importing countries in the world, often times holding the top position. Average annual importation ranges between one to two and half million tonnes, primarily sourced from Thailand and Vietnam, and more recently from India.

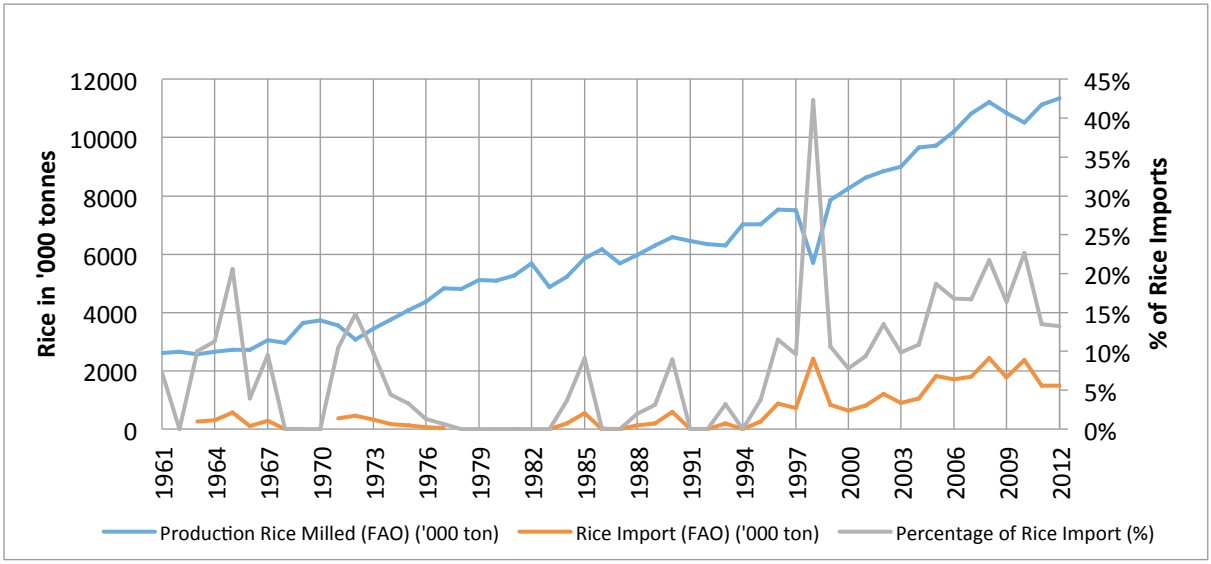
Due to the consistent shortfalls between the total production of rice and demand within the country, the Philippines has a long history and tradition of public stockpiling practices, especially for rice. Stockpiling has been a way to ensure stability in supply in general as well as in making sure sufficient stocks are available during the lean months (July-September)[78] and in the event of natural calamities and disasters, to which the country is particularly susceptible to. It has also been observed that productivity in rice in the Philippines drops during El-Nino years (almost -1tonne/ha in 1997-1998), which requires additional imports to offset the shortfall.

Figure 5a: Philippines Rice Yield and Productivity



[78] Lean months refer to months in the year when rice production and harvests are minimal due to seasons.

Figure 5b: Trend in Rice Milled Production and Imports



Source for both figures: FAO and USDA 2014

Historical Overview

Tolentino and de la Pena (2011) summarised the evolution of institutional transformation concerning food security in the Philippines (Table 8). During the Philippine Commonwealth period (1935–1946), the National Rice and Corn Administration (NARIC) was in operation. In 1952, the Rice Economic Board (REB) was created to formulate and oversee the implementation of an integrated development plan and programme for rice.[79]

President Ramon Magsaysay (1953-1957) introduced the National Rice and Corn Production Program (NRCPP) and its Rice and Corn Coordinating Council (RCCC) in 1955. In 1960, the Rice and Corn Board (RICoB) was created by Republic Act No. 3018 (or RA 3018), with the purpose of limiting the rice and corn industry to Filipinos. Then, in 1962, the Rice and Corn Administration (RCA) was created to stabilise the price of the grains.[80]

President Ferdinand Marcos (1965-1986) began his martial law administration in 1973 and issued Presidential Decree (PD) No. 4 (or PD 4), which abolished the RCA and RICoB and transferred their functions into a new, much more powerful National Grains Authority (NGA). PD 1770 (1981)

[79] Tolentino, V., J. Bruce, and B. De La Pena. "Stymied reforms in rice marketing in the Philippines, 1980-2009." Built on Dreams, Grounded in Reality: Economic Policy Reform in the Philippines, Asia Foundation, Makati City, Philippines (2011).

[80] Ibid

expanded the scope and powers of the NGA, and renamed it the National Food Authority (NFA). However, as part of reforms in the closing years of martial law, the NFA's scope was reduced to rice and corn by Executive Order (EO) No. 1028 (or EO 1028, s. 1985).

Table 8. Institutional Evolution of Food Buffer Stock Policy in the Philippines

Period	Name of Food Authority	Governmental Regime	Key Policy Measures
1935 - 1946	National Rice and Corn Administration (NARIC)	Philippine Commonwealth	Local control of corn and rice industry - floor and ceiling prices for palay and for rice
1952	Rice Economic Board (REB)		
1955	National Rice and Corn Production Program (NRCPP) Rice and Corn Coordinating Council (RCCC)	Ramon Magsaysay (1953-1957)	Other commodities were also regulated: feed grains, sorghum, mango, peanut
1960	Rice and Corn Board (RICOB)	Republic Act No. 3018 President Ferdinand Marcos (1965-1986)	limiting the rice and corn industry to Filipinos
1962	Rice and Corn Administration (RCA)		stabilise the price of grains
1972	National Grains Authority (NGA)[81]		Rice self-sufficiency; Massive paddy procurement at government price in 1977-1982; PD 4/1972 covering rice, corn, feed grains and others like sorghum, mango, and peanut
1981	National Food Authority (NFA)[82]	PD 1770 (1981)	Supply stabilisation and Price control 1985, Executive Order No. 1028 was issued and provided for the deregulation of NFA's non-grains marketing activities.

[81] RCA and RICoB and transferred their functions into a new, much more powerful National Grains Authority (NGA)

[82] As part of reforms in the closing years of martial law, the NFA's focus was reduced to rice and corn by Executive Order (EO) No. 1028 (or EO 1028, s. 1985)

The Government of the Philippines has gradually deregulated its food reserve and stockpiling from a more diverse list of food commodities during 1970s and 1980s to only stockpiling three main commodities, namely rice, corn and sugar. Today, both rice and corn stocks are monitored and managed by the National Food Authority (NFA) while sugar is monitored and managed by the National Sugar Authority (NSA).

Since 1985, the National Food Authority has been tasked to ensure the food security of the country and the stability of supply and price of mainly rice. It fulfils this function by maintaining buffer stocks which comprises of mostly imported (approximately 95 per cent) and some domestically procured (3-5 per cent) rice. It performs these functions through various activities and strategies, which include procurement of paddy from individual farmers and their organisations, buffer stocking, processing activities, dispersal of paddy and milled rice to strategic locations and distribution of rice to various marketing outlets at appropriate times of the year.

Present Food Reserve Policy and Practices

The NFA falls under the auspices of the office of the President. There is however other government agencies that sit on the NFA council like the Department of Agriculture (DoA), Department of Finance, Department of Trade and Industry, National Economic Development Authority (NEDA), as well as representatives from the Central Bank.

In terms of reach, the NFA as an institution is present in all districts in the Philippines, which serve as both distribution and procurement centres. The NFA controls over 350 warehouses across the country, used primarily to store rice. In terms of distribution, the NFA sells its stocks to wholesalers in the respective districts and regions, who then retail the rice to consumers. NFA is not involved in direct retail to end consumers.[83]

Rationale for public stockpiling

There are numerous grounds under which public stockpiling of rice (primarily) has been justified and deemed necessary. Some of these include:

a) To ensure food security in Philippines (in terms of availability – supply stability)
b) To ensure adequate access to food for the populace (through market intervention and subsidising rice)
c) To guard against supply disruptions (especially during lean months July-September)

[83] Interview with Officials from National Food Authority (NFA), 14 Nov 2014, Quezon City, Manila

d) To ensure sufficient stocks to respond to emergency situations (natural disasters, typhoons)
e) To boost domestic production (through setting of Minimum Support Price – producer subsidies)
f) To ensure farmer incomes

The mechanism

There are two distinctions made within the national rice stock. The first, referred to as Emergency Stocks, is a 15 day supply of rice. This amounts to 31,640 tonnes (daily rice consumption rate of the Philippines,) multiplied by 15.[84] This is the minimum amount which is maintained at all times.

The second, referred to as Strategic Rice Reserve, is used to shield against supply disruptions, which are seasonal.[85] For example the dry seasons of July-September corresponds with low level of stocks in the market. For this reason NFA maintains a minimum of 30 day stocks (30 x 31,640 tonnes) from July 1 – September 30 every year.[86]

This 30 day buffer stock is inclusive of the 15 day emergency reserve.[87] NFA procures the necessary quantity for the 30-day buffer, mostly through importation, which is then maintained and strategically located across the country by July 1st of each year.

This seasonal pattern of rice stockpiling by NFA can be observed over the years as seen in figure 8 below. Stocks tend to accumulate starting in the months of June/July due to importation in anticipation of lean months and reach its highest levels in September/October after the harvests. February to April usually marks the low point of stocks in most years.[88]

[84] Interview with NFA. Op cit.

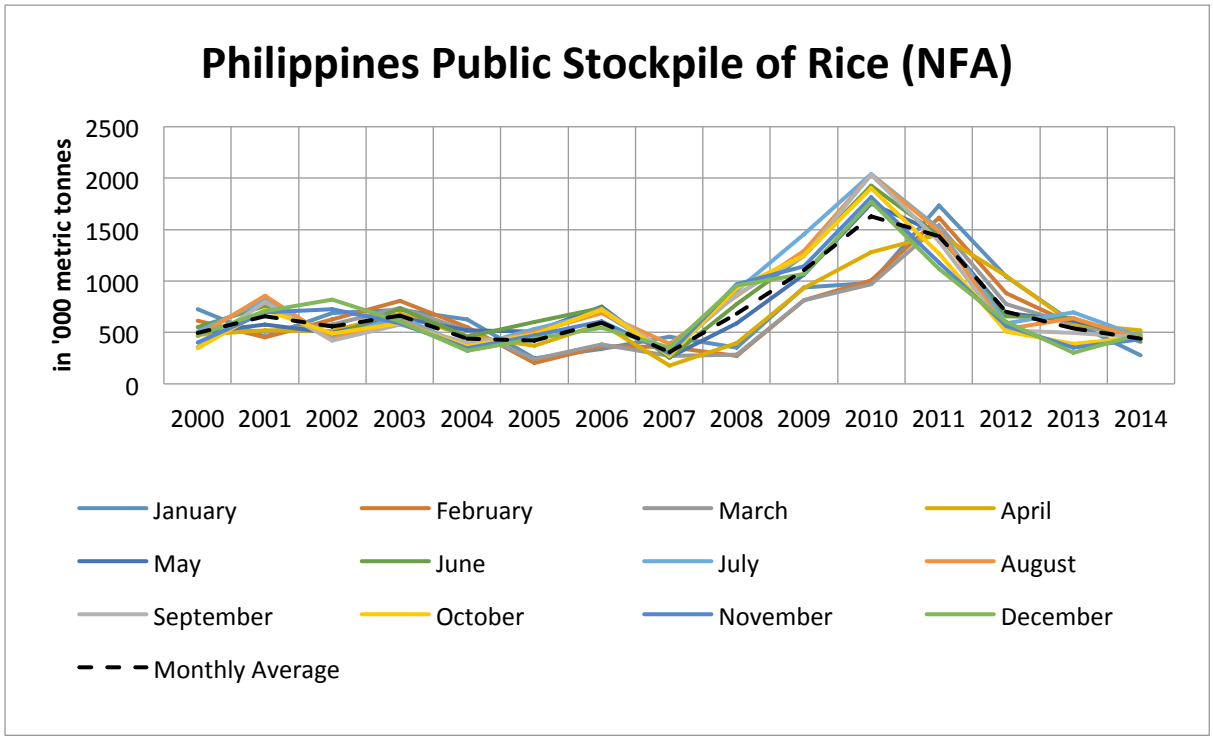
[85] Ibid

[86] Ibid

[87] Ibid

[88] NFA data. 2014. http://nfa.gov.ph/about-us/nfa-council?id=101 (last accessed December 2015).

Figure 6: Monthly stockpile of rice in Philippines

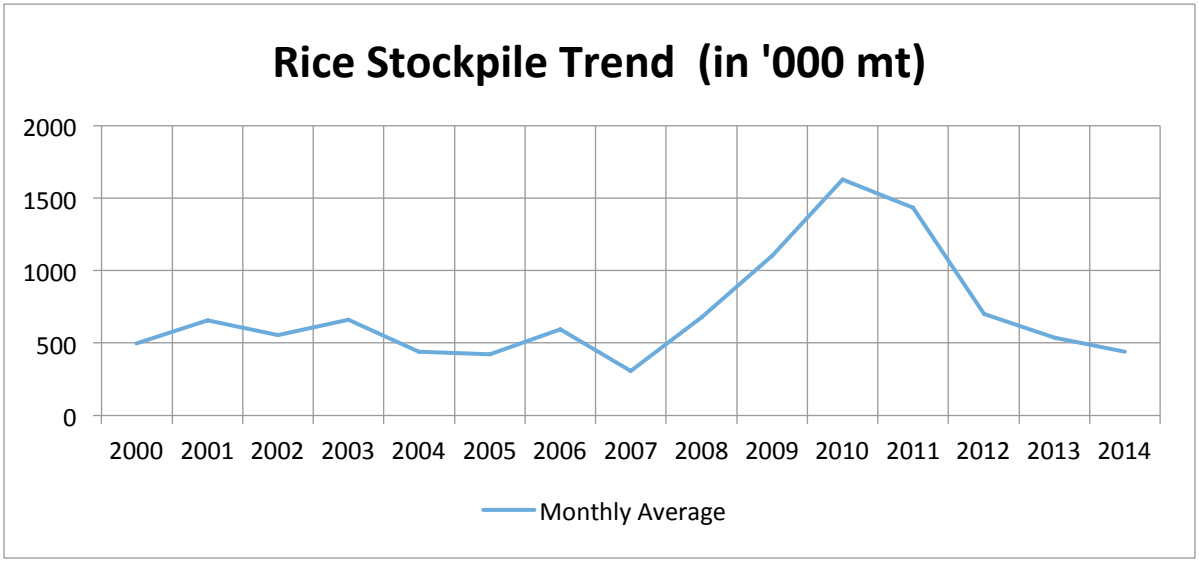


Source: NFA Data, 2014

Recent stockpiling trends

The Philippines food reserve data shows a sudden rise in rice stockpiling after the food crisis in 2007-2008. It rose significantly in 2009 and peaked in 2010 (see Figures 8 and 9). Since 2010 the NFA has reduced its public stock levels significantly. Even in the aftermath of the Haiyan/Yolanda Typhoon in 2013, which affected the country and its agriculture production severely, there was no sign of significant increases in public stocks.

Figure 7: Trend in Philippines Public Rice Stockpile (in '000 tonnes)



Source: NFA data, 2014.

Issues and areas of concern of current stockpiling programme

In the 1970s and 1980s, the NFA struggled to maintain its thirty-day buffer stock largely because of a small procurement share in domestic production, and the insufficient and untimely arrival of rice imports. This situation now, though better, does not seem to have changed much.

Findings of recent studies[89] on the performance and impact of the NFA suggest little changes in the impact of NFA on domestic markets and farm prices and as compared to results in previous decades. Both recent and earlier studies have also highlighted the distorting effect of NFA interventions in reducing the incentives for private traders to undertake purchasing, storage of stocks and selling in the market.[90]

Governance and inefficiency issues

Food Security policy in the Philippines is governed by multiple agencies, which often leads to different or competing priorities. The Inter-agency Committee on Rice and Corn consists of DoA (Lead), NFA, NEDA, National Irrigation Agency and Civil Society Organisation (CSO) representatives.

[89] Balisacan, Arsenio M., Mercedita Sombilla, and Rowell Dikitanan. "" Rice crisis in the Philippines: Why did it occur and what are its policy implications?" The rice crisis: Markets, policies and food security (2010): 123-142.

[90] Sombilla, M. A., F. A. Lantican, and J. C. Beltran. "Rice Marketing and Distribution in the Philippines." Ensuring Rice Security for All: Issues, Constraints, and Policy Directions, SEARCA, PhilRice and DA-BAR (2006).

This committee recommends how much rice should be procured and stockpiled for food security by the NFA.

Some in the Philippines argue that NFA has not been able to successfully fulfil its mandate on helping boost production through the use of buffer stocks. When domestically procured, it has been observed that NFA has been biased towards buying from surplus areas and not deficit regions.[91] This is seen as justified in terms of stock availability, however such practice often means that the benefits derived from selling to NFA is not realised by farmers in deficit areas. As a result deficit regions fall into a spiral of deficits since farmers are unmotivated to grow rice.

Imports, which constitute the vast majority of NFA stocks, has not been done in an open and transparent manner. Timing of procurement is another important dimension which has not always been adhered to in a systematic manner. As it is already clear that NFA stocks have to be secured by July, as the lean months start then, decisions in terms of imports would have to happen much earlier, which has not always been the case.

Other concerns include cost and inefficiencies. The estimated losses due to inefficiency in its buffer stock policy have been estimated around PHP 170 billion (approximately SGD 5 billion) as of 2012-2013.[92] The estimated loss presumably arises from very expensive handling cost in both transport and storage, waste, storage loses due to inefficient management and some to incidences of leakage and smuggling.[93] The problem of over-importation and corruption is also well known and seem to happen on a fairly regular basis.[94]

Future direction of stockpiling programme

The future of stockpiling in the Philippines is going to be highly dependent on the results of the currently on-going NFA internal review and audit.[95] There seems to be wide consensus that some form of emergency stockpile is needed for the country given the growing number of weather-related and climate change impacts.

[91] Interview with Dr Lantican, 18 September 2014, Los Banos

[92] Interview with officials from NEDA, 19 Nov 2014, Manila

[93] Mehta, Aashish, and Shikha Jha. "Corruption, food subsidies, and opacity: Evidence from the Philippines." Economics Letters 117, no. 3 (2012): pp. 708-711.

[94] Ibid

[95] Interview with officials from NFA, 14 Nov 2014, Quezon City, Manila

A major justification for the stockpiling programme so far has been in ensuring access to rice for all in the Philippines. In this aspect rice stockpiling is likely to continue due to the high incidence of poverty that persists. On the other hand with close to half the population dependent on the agriculture sector, of which rice constitutes the bulk, a stockpiling programme for farmer income and subsidy purposes is likely to remain politically important. Currently incomes from rice remain relatively low in the Philippines due to the high cost of seeds and other inputs.[96]

The other potential driver for stockpiling in the Philippines could be increased importation. Should the government drop its self-sufficiency plans, focus on its comparative advantage, and depend strongly on importation from the region (currently Thailand, Vietnam and India), the government might see a greater need to secure stocks.

[96] Interview with Dr Lantican, 18 Nov 2014, Los Banos

Thailand

Table 9: Public Stockpiling of Rice Snapshot

Total Population	67.2 million (2015, projected)				
Quantity of public rice stockpiles	**Total (in '000 mt), 2014**				
	Production	**Imports**	**Exports**	**Consumption**	**Public Stockpile**
	18,750	300	9,000	11,700	18,000
Public Stockpiling Authority/Institution	• Public Warehouse Organisation (PWO) Ministry of Commerce				
Purpose of public stockpile	• Farmer subsidy • Export stability				
Governance of stockpile	**Control**		**Commodity**	**Name of Institution**	
	Public		Rice	PWO	
Present Stockpile Mechanism	**Stockpiles for export**		No fixed mechanism to determine minimum quantity.		
Dedicated infrastructure for stockpiles	**Facility**		**Numbers**	**Capacity (in '000 mt)**	
	Warehouses		1800	(Not publicly available)	
	Silos		137	(Not publicly available)	

Introduction

Thailand is one of the largest exporters of rice in the world. It has in fact been one of the top exporters in the last decade and a half followed and occasionally overtaken by India and Vietnam. The building up of stockpiles however, is something of a recent phenomenon for Thailand.

The main purpose for stockpiling of rice in Thailand is for export supply stability. This usually does not require large volumes and quantities. The recent trend is thus a relatively new event as a result of interventionist policies put in place by particular administrations.

Other than government stockpiles, there are also private stocks. Private stocks are held by traders and millers. Combined, the traders and millers hold approximately 2 million tonnes of rice.

With the incumbent junta government in Thailand taking power, the stockpiling programme initiated under the Yingluck Shinawatra administration has been halted. The Thai government is not procuring any more stocks. A full audit of government held stocks (in July 2014) has also been ordered so as to evaluate the quality and also to get the exact quantity of the government rice reserve which was accumulated since 2011.[97]

Present Food Reserve Policy and Practices

Thailand has historically had excess supplies of rice as compared to its demands. This has led to the country being a net exporter for over a century and a half. Thailand therefore has no reason to stockpile rice for food security purposes of its people as many other countries do. The primary challenge of the rice economy in Thailand has been in ensuring suitable prices for its farmers from the markets in order to guarantee them a good income and keep them incentivised to remain in the sector.

The recent rice pledging scheme introduced in 2011 under Yingluck Shinawatra's leadership promised farmers a minimum price for their rice. This is not an uncommon practice, many governments which run stockpiling programmes to guarantee farmer incomes also publicly release and defend minimum support prices (MSP) or a guaranteed minimum price (GMP). In the case of Thailand the minimum price was set much higher than international prices. The government was now committed to procure and stock all the rice from the farmers at the promised price, but was unable to sell the rice in the international markets where it was intended without suffering a major loss on every tonne sold. This led to massive stock build-up in government warehouses. The rice was stored in hopes of sale when international prices go up and beyond the pledged price of close to US$600 per tonne.[98]

Since 2012 the stockpiles in Thailand averaged approximately 15 million tonnes, reaching close to 30 million tonnes by 2013-2014.[99] Stock levels have started to drop since the junta government takeover as they have desperately tried to sell stocks at discounted prices.

The junta government has also suspended all procurement by the state while it continues to offload and tries to sell existing stockpiles. Despite the resolve to sell its existing stockpile the process is likely to take a number of years. This is because bids and sales are done in batches of 500,000 tonnes

[97] Interview with member of Thailand Rice Trader's Association, 11 Feb 2015, Bangkok

[98] Interview, op. cit.

[99] Interview with official from AFSIS, 10 Feb 2015, Bangkok

each time.[100] The total losses incurred by the Thai state with this round of paddy pledging are estimated to be in the regions of US$ 20 billion.[101]

'Paddy Pledging' programme

The paddy pledging policy was first introduced in the 1981–1982 cropping season with the objective to provide soft loans for farmers who wanted to delay sale of their crops. This was to tide the farmers over periods when prices are low, so they can hold stocks and sell under more profitable conditions. This system (of being able to take out loans using their stocks as collateral) continued until 2000. The programme changed its objectives in 2001–2002. It could now also act as a way to control rice price and increase farmers' incomes. This meant that there were now two distinct ways farmers could use their stocks for greater incomes.

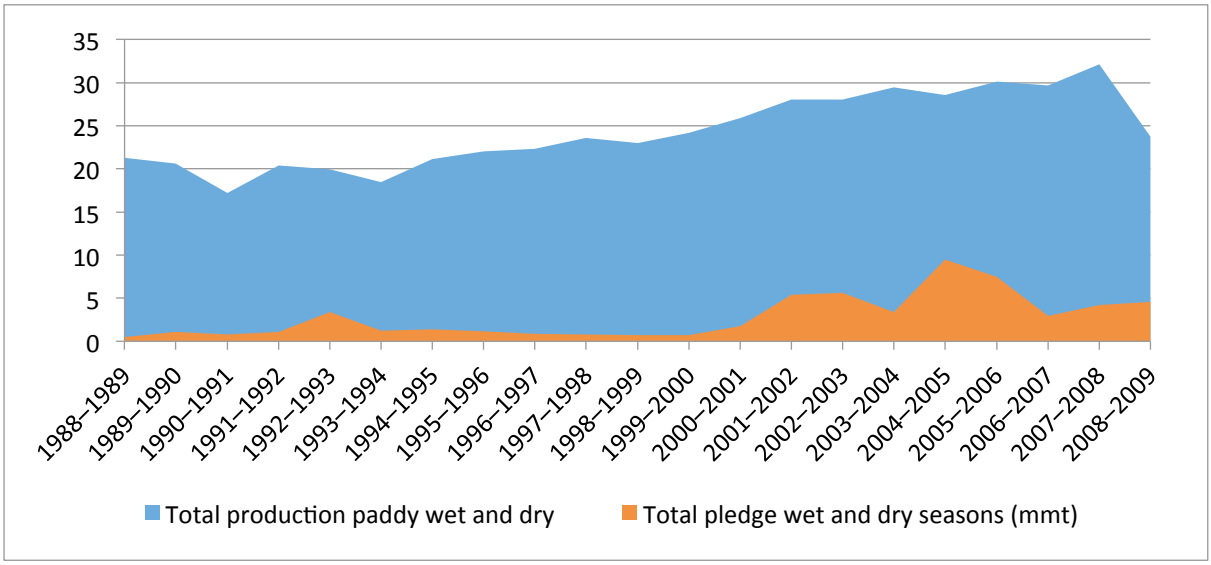
The first was now farmers could now borrow 'soft' loans[102] from the Bank of Agriculture and Agricultural Cooperatives (BAAC) using their paddy as collateral stored in their own facilities. Alternatively, they could choose to bring their paddy to a government-operated warehouse run by the Public Warehouse Organization (PWO) located in every district in the country where they could store their rice instead. The government of Thailand provided interest subsidy for the farmers and paid the full interest rate on the BAAC loans (about 6.0–7.0 per cent) for farmers who chose the first option of storing rice themselves. In case of the second option when the rice is stored by PWO, they would need to pay three per cent interest and the difference would be covered by the government.

[100] Interview with member of Thailand Rice Trader's Association. Op cit.

[101] Interview with Dr Niphon, 13 Nov 2014, Manila

[102] Soft loans are loans at lower interest rates and more favourable terms for the borrower as compared to market norm.

Figure 8: Total paddy production vs. total paddy procured through pledging (in mmt)



Source: Government Statistical Office (amended from Poapongsakorn, 2010) [103]

Lessons, issues and areas of concern of Thailand's stockpiling programme

Politicisation of rice policy

Given the procedure and institutional arrangement of how rice policy in Thailand is formulated, it is little surprise that it is so susceptible to politicisation. The initial review which started the high level of pledging originated in Thaksin Shinawatra's government in early 2000s. While it was justified on the grounds of helping the farmers, who constitute the low income section of Thailand, public stockpiling of rice could also be seen as appeasement of his political base and a way of buying votes.

There was a continuance of similar policies by the subsequent Yingluck administration. The pledging policy cost Thailand's its top position in the international market as it could not afford to sell its stocks below its pledged local prices.

Costs of Stockpiling

Other than the direct fiscal costs associated with the pledging programme, there were also large losses incurred in terms of physical stock. It is estimated that close to 2 million tonnes was lost due

[103] Poapongsakorn, Nipon, and D. Dawe. "The political economy of Thai rice price and export policies in 2007-2008." Rice crisis: Markets, policies and food security (2010): pp. 191-217.

to a poor rotation system. Another couple of tonnes is now said to be of significantly bad quality, which will be hard to sell or auction off.[104]

Losses are also incurred as a result of smuggling. During the recent pledging programme (2011-2014) smuggling from neighbouring countries is said to have been rampant.[105] Rice from mainly Cambodia, and in some cases from Vietnam, were said to have been smuggled into Thailand to profit from the extremely high pledge prices. A black market for smuggled rice was supposedly operating extremely well during these years.[106]

Crowding out of the Private Sector

The running of pledging programmes in Thailand also had an impact on the private sector. The private sector has always been an important player for rice both domestically and internationally. During the pledging programme, the high prices offered by the government meant the private traders could not procure any rice in the market for close to two years (2012–2014).

This led to a number of businesses shutting down and exiting the rice market. Others moved to focus on other commodities instead, where there was low/no government intervention. Only rice traders and businesses with connections to the government could get access to government stocks and buy at low prices.[107] The rest were priced out. This is likely to have long-term consequences for Thailand's rice economy.

Future directions for Thailand's food policy and stockpiling

It is now clear that the costs of Thailand's recent pledging programme have far outweighed the gains. After this bitter experience it is unlikely that any future government in the short- to medium-term will likely pursue similar out of control stockpiling policies. Public rice stockpiles are likely to drop and remain at more "acceptable" levels of up to six million tonnes (levels before Yingluck's rice policy revision).[108]

[104] Interview with member of Thailand Rice Trader's Association. Op cit.

[105] Ibid

[106] Interview with official from AFSIS. Op cit.

[107] Interview with member of Thailand Rice Trader's Association. Op cit.

[108] Ibid

Vietnam

Table10: Public Stockpiling of Rice Snapshot

<table>
<tr><td>Total Population</td><td colspan="5">90.7 million (2014, estimated)</td></tr>
<tr><td rowspan="3">Quantity of public stockpiles</td><td colspan="5">Total (in ‘000 mt), 2014</td></tr>
<tr><td>Production</td><td>Imports</td><td>Exports</td><td>Consumption</td><td>Public Stockpile</td></tr>
<tr><td>28,074</td><td>400</td><td>6,200</td><td>22,100</td><td>2,000</td></tr>
<tr><td>Public Stockpiling Authority/Institution</td><td colspan="5">• Vietnam Food Association
• VINAFOOD 1 (Red River Delta Production) and VINAFOOD 2 (Mekong River Delta Production)</td></tr>
<tr><td>Purpose of public stockpile</td><td colspan="5">• Farmer subsidy/income
• Export stability
• Market/price stabilisation</td></tr>
<tr><td rowspan="2">Governance of stockpile</td><td colspan="2">Control</td><td colspan="3">Name of Institution/Organisation</td></tr>
<tr><td colspan="2">Public</td><td colspan="3">VINAFOOD 1 and VINFOOD 2</td></tr>
<tr><td rowspan="3">Dedicated infrastructure for stockpiles</td><td>Facility</td><td>Numbers</td><td colspan="2">Capacity (in ‘000 mt)</td></tr>
<tr><td>Warehouses (Covered)</td><td>(not publicly available)</td><td colspan="2">Approx. 2,000</td></tr>
<tr><td>Silos
None</td><td>Under construction (numbers unspecified)</td><td colspan="2">VINAFOOD 1 and 2 plans to construct silos for a total of 4 million tonnes of storing capacity.</td></tr>
</table>

Introduction

Vietnam, through VINAFOOD 1 and 2, have mostly been stockpiling two commodities. First is rice which serves as the prime grain that dominates Vietnam’s food production. Second is coffee as it has been an increasingly important agricultural export commodity for Vietnam. Stockpiling of rice and coffee has largely focused on producers. As mentioned above, every year, the Vietnamese government announces calls for national stockpiling of rice. During 2014- 2015, Vietnam experienced slight losses of a share of the world’s rice market to Thailand and India.

The stockpiling policy has been instrumental for Vietnam's rice exports. It is a well-organised public and private cooperative mechanism which ensures continuity of exports. At present, the government of Vietnam is planning to increase its public stockholding capacity from 2 mmt to 4 mmt. This means that by 2020, it is likely that the Vietnamese government may have stocks of about 4 mmt at any given point in time (or between 15-20 per cent of total annual domestic consumption). The rationale of the government as expressed and justified by the VFA and VFA members, is that such an increase in stockpiling will be helpful for the farmers to sustain their production (and by extension their incomes) and improve their overall welfare.

However, there are sceptics of this new proposal.[109] The proposed targets are considered unnecessary because Vietnam does not need large public reserves due to the costs for the state to maintain the stocks when the private sector could be put in charge of holding stocks. In the past, rice reserves were needed especially in the North due to unstable production, these have however stabilised in recent times. Vietnam has a good international market for its rice, which also suggests there isn't a need to maintain large (public) reserves for domestic consumption purposes. Vietnam's main rice export destinations include China (biggest importer), other Asian countries (Philippines and Indonesia) as well as Africa (e.g. Ivory Coast and Angola) and Latin America. Critics of Vietnamese rice stockpiling policy thus feel that what is needed is to promote Vietnamese rice in more countries and regions so it can reap the benefits from the international market. The cost of stock rotation is also going to be significantly higher – as the government will need to rotate its entire stocks every 2-4 years to maintain the quality of stockpiled rice.

One of the most controversial policies on stockpiling is the Vietnamese Government Decree 109/2011 which regulates minimum stock amounts for rice exports. The decree states that "a rice business must have a warehouse capable of stocking at least 5,000 tonnes of rice, and a rice husking plant with a 10 tonnes per hour capacity, to be eligible to export their products." [110] The policy was initially created to boost rice exports. However this policy has triggered high dropout rates of exporters from smaller provinces. Furthermore, the decree considers rice to be one homogenous

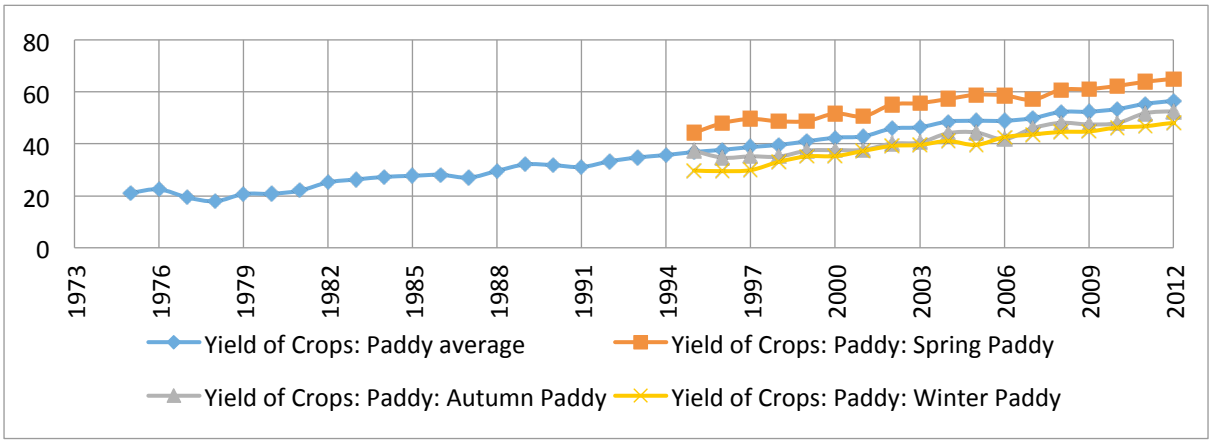
[109] Interview with Director of Research Department for Public Service Policies Central Institute for Economic Management (CIEM), Sept 2014.

[110] Nguyen Trong Thua, head of the Agro-Forestry Processing and Salt Industry Department, Ministry of Agriculture and Rural Development. See Rice stockpile policy harvests all-round gains [May 2013] 25/05/2013http://english.vietnamnet.vn/fms/business/74990/rice-stockpile-policy-harvests-all-round-gains.html [Last accessed September 2014]

commodity and does not recognise the existence of niche markets for specific rice varieties which exists in the global market. As a result, this policy has been highly criticised.[111]

Vietnam's rice stockpiling programme started in the mid-1990s and it continues to increase its stockpile amounts as part of the "export readiness" strategy[112] . The exports involve different types of rice including high value rice, such as Vietnamese aromatic rice and glutinous rice, which have seen an increase in terms of market share recently.[113] This steady increment in stockpiles has been possible due to both the increases in yield as well as in production since 1990s. Vietnam currently produces three crops of paddy every year – Spring, Winter and Autumn. Most of the harvest and stockpiling occurs during the Winter-Spring and Summer-Autumn periods.

Figure 9: Trend of paddy yield in Vietnam 1970s-2012



Source: USDA and FAO data, 2014

Governance of rice stocks

VINAFOOD 1 in Hanoi looks after supply and availability of rice for the Northern regions of Vietnam. VINAFOOD 2 in Ho Chi Minh City manages rice production in the Mekong Delta (Southern regions). While VINAFOOD 1 has rice as its core business, it also functions as a general trading company

[111] See statement by Truong Thanh Phong, chairman of Viet Nam Food Association (VFA), Vietnam News 25/05/2013. http://english.vietnamnet.vn/fms/business/74990/rice-stockpile-policy-harvests-all-round-gains.html [Last accessed September 2014]

[112] Export Readiness Center 2011: Vietnam's Export Readiness Washington State University, 30 April 2011. http://export.wsbdc.org/assets/uploads/4fa8635086bf9Vietnam_Country_Report_V5_63011.pdf [Last accessed November 2014].

[113] See rice information at the Vinafood 2. http://www.vinafood2.com.vn/EN/Pages/SanPham.aspx

dealing with other grains.[114] Through VINAFOOD 1 and 2, the government of Vietnam has been able to export 6-7 million tonnes of rice annually.

This price of rice tends to slump during the Winter-Spring harvests (around March).[115] In order to mitigate the sudden shock to farmers' incomes, the government often stockpiles rice through the private firms in order to ensure the 30 per cent profit margin for the farmers.[116] There also seems to be pressure on the part of the government and private traders to export the Winter-Spring stockpiled rice as soon as possible since firms have to start anticipating and planning for the Summer-Autumn rice stockpiles.

Governance Issues of Stockpiling

The VFA has 125 official members and about 10 associate members. VINAFOOD 1 and VINAFOOD 2 are the two key firms which is owned by the government. Its members deal with food and agricultural production, processing and trading including dealing with processed food. The VFA has been mandated to determine the quantity and quota of government's food (rice) procurement for stockpiling. Since the head of VFA should come from its members, there are issues regarding the fairness and the legitimacy of quota policy for each province. There are also issues around non-member firms that can also play a role given the fact that existing storing capacity of VFA members in some region have been exhausted.

In addition, cooperation between VFA and local governments is often absent. Local governments view VFA as unilaterally deciding rice quotas from each region based on a 'top-down' approach without proper local consultations.[117] As a result some quotas are not proportional to the level of local production.

[114] Interview with Mr. Quach Manh Dung, Deputy Marketing Manager. (He wrote his MSc thesis on food crisis 2007-2008).

[115] Vo Thanh Do [Deputy head of the Agro-Forestry and Fisheries Processing and Salt Industry Department], VietNamNet, Stockpiling helps to boost rice farmers' profits [12 June 2014]

[116] Dr. Nguyen Mihn Hai, Phone Interview on 2 October 2014. See also Pham Hoang Ngan (2010)

[117] Huynh Van Ganh, Director of the Kien Giang Department of Industry and Trade. See Vietnam News - June, 17 2013 http://vietnamnews.vn/economy/240851/delta-hit-by-low-rice-prices.html.

Conclusion

Given the findings from the field as well as the literature and secondary sources available, it seems clear that stockpiling of rice is likely to continue, if not expand, in the Asia Pacific region into the foreseeable future. There a number of reasons for this, some of which are listed below.

- Most countries have a history in terms of public stockpiling of rice and many have continued to operate some form of public rice stockpiling programmes for decades. This is therefore not a recent phenomenon.
- There are indications that most governments have started revisiting the stockpiling option after the experience of the 2007-2008 global food price crisis. Hence there seems to be greater resolve.
- The recent revisiting and re-assessment in terms of public stockpiles has two features; (i) in terms of quantities and volume of rice placed under reserve (ii) types and kinds of commodities (staples, grains etc.) to be stockpiled.
- Reviews and audits are on-going in a number of the countries for institutions which have been dealing with public rice stockpiling and distribution programmes. Some aim to minimise losses and inefficiencies experienced in the past. Others are keener to explore different organisational and structural options for better efficiency and cost-effectiveness. These are welcome signs but also point to the resolve and commitment towards maintaining stockpiles.
- One of the main rationales for public stockpiling has been the eroding of trust in the international markets and long term stability of international prices for key commodities. Malaysia, Philippines and India are examples of this. Hence international developments and factors are also becoming instrumental in stockpiling policies and not just purely domestic ones, which was largely the case in the past.
- An increasing number of natural disasters, emergencies and the issue of climate change are also weighing in. This is leading to greater consideration for the need to maintain emergency stocks especially in countries like the Philippines and Indonesia which are prone to major natural catastrophes.
- Maintaining food reserves is also becoming popular as part of government "social obligations". This is in terms of providing food as part of safety nets for the less fortunate. India's National Food Security Bill, Indonesia's RASKIN programme, and Philippines' NFA-run subsidised food programmes all attest to this.

Public stockpiling of rice is therefore likely to remain an important part of food policy for many governments in Asia Pacific. The justification for this is increasingly on the grounds of "food security", which is oftentimes understood and construed in different/varying ways. However given the implications of stockpiling policies, both on the domestic front as well as internationally, what is likely to be the new normal of growing and large national/public reserves is certainly going to be an important facet to be aware of, monitor, and consider when discussing Asia's food security moving forward.