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A study on the ASEAN Plus Three Emergency Rice Reserve as a food security institution in East Asia



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Abstract

This study was conducted to study the background, operation status, problems, and improvement plans of the ASEAN Plus Three Emergency Rice Reserve (APTERR) institution, which was formed under ASEAN and the Plus Three governments consisting of Korea, China, and Japan to cope with the food crisis in East Asia. This study performed a literature search and focus group interview with experts. In-depth expert interviews were conducted three times for one month in August 2021 with eight experts in the relevant field. The results of this study are as follows. The APTERR was established to cope with the regional food crisis. Experts recognized that the APTERR had been operating relatively successfully since 2011. However, the APTERR's financial dependence on the Plus Three countries, including Japan, should be corrected. Experts were positively aware of APTERR's role and prospects in the food crisis that might appear in situations such as the COVID-19 pandemic. In conclusion, this study revealed that the APTERR could contribute to regional cooperation and integration. This study has the significance of providing practical and academic primary data on the international institution and regional integration issues regarding food security in East Asia.

Keywords: regional integration, food security, East Asia, ASEAN Plus Three Emergency Rice Reserve (APTERR) food crisis

Introduction

Even though there are several types of problems a country can face, a government does not recognize all of them as “crises” because, in most cases, a government is able to address its own problems with its own domestic policy resources. A “crisis” describes a situation where the government cannot solve problems on its own. Under normal circumstances, where there is enough economic capacity, a government can mobilize resources to address the majority of problems (Viravaidya and Hayssen, 2001). However, with a limited budget and public resources, not all issues may be readily addressed, especially when the government has to cope with problems in a short period.

What about food, fuel energy, and foreign exchange? Usually, these factors are tradable and stable. In the end, the market economy itself can usually solve problems with a price mechanism. High prices tend to increase production and supply (of substitutes as well) in the long term, and issues associated with these factors usually “solve themselves” over time. However,

if there is shock, fear, and disaster in the market, the price increases up to a non-tradable level in a very short period (Guo, 2007).

Under these circumstances, increasing prices in a short period of time can mean an abrupt supply shortage in the market, which means limited export and damage to households and businesses. This is what would be considered a crisis. In this study, the concept of *crisis* is understood to be “the period when the government intervenes to overcome an issue.”

To overcome a crisis, a well-organized crisis management program is needed for forecasting and mitigation. Given that national governments are the primary stakeholders involved in the international food security institution, whether the crisis occurs domestically or internationally, the burden to resolve crises lies with them.

A food crisis is usually serious and recurrent and is regarded as a government responsibility. However, there are not many internationally common food crises that have a common solution. Even if there is an internationally common food crisis,

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there are few common solutions to deal with the food crisis together.

Procuring food from foreign markets is not a common solution for governments dealing with a food crisis. However, there are some policy interventions to deal with food crises. These include international support for long-term agricultural development and international food reserves for the short term.

During the global food crisis in 2007–2008, there were significant price spikes in the global food market. Cereal and meat prices soared rapidly. More than 850 million people worldwide were affected when prices of major food staples soared up in the last quarter of 2007. In the first quarter of the following year, commodity prices rose twofold, and the number of people who experienced hunger jumped to more than a billion (UNESCAP, 2009).

By mid-2008, the average domestic prices for maize and wheat on a per-country basis increased by about 40% compared to the first month of 2007 (FAO, 2009). On the world market, rice prices rose by about 149% in 2007 and 2008, making this major staple food scarce to the majority of people in Asia and globally (UNESCAP, 2009). From the third quarter of 2007 to the second quarter of 2008, the world market price of rice recorded a threefold increase, rising sharply to over USD 1,000 from USD 335 per ton.

The 2007–2008 crisis was significantly worse than the previous severe food crisis in the 1970s. During the 70's food crisis, the prices of rice on the global market did not double even within any six month-span (Dawe, 2010). These problems of food insecurity as a crisis prevail at both national and international levels (Schutter, 2009). In fact, a considerable number of international media outlets described the 2007–2008 turmoil as a global food crisis (Paarlberg, 2013).

In fact, food scarcity has become a growing issue in many parts of the world. Rapidly increasing populations, from a mere 5.7 billion in 1994 to 7.3 billion in 2014, which resulted in a drastic increase in global caloric intake, have shifted food demand. Over the years, it has become highly recognized that a global food crisis is best solved through international cooperation (UN, 2010).

In Southeast Asia, recurrent food crises have proven to be a major key for cooperation and integration. Since the 2010 food crisis, Association of Southeast Asian Nations (ASEAN) members have collaborated on relevant policies to better manage domestic food supplies. They have also instituted

several salient regional policies that facilitate that free share of information (Tolentino, 2014).

ASEAN Plus Three (APT) governments, which consume rice as a staple food, launched the ASEAN Plus Three Emergency Rice Reserve (APTERR) after experiencing the need to share and cooperate with regional food policies during the food crisis caused by a surge in world food prices in 2007–2008. In particular, as the COVID-19 era prolongs, the possibility of a food crisis in East Asia is increasing (APTERR, 2018). Therefore, at the ASEAN+3 meeting in November 2020, member governments agreed to jointly respond to the threat of a food crisis that could emerge in the era of COVID-19 (Kimura et al., 2020).

Some studies on food security have been conducted; regional governance, food security and rice reserves in East Asia (Belesky, 2014); overview of the APTERR (Trethewie, 2013), regional cooperation for food security in East Asia (Takashi and Suwunnamek, 2011). However, few studies have been conducted to examine the role, current situation, problems, and improvement measures of the APTERR institution created to respond to the food crisis. Therefore, this study intends to conduct a study on the role and operation status of the APTERR, related problems, and improvement measures through literature review and in-depth interviews with experts, aiming to contribute to the vitalization of the APTERR, a food security organization in East Asia.

Materials and Methods

Research method

This study was conducted to examine the process of regional integration in East Asia. In particular, it was performed to evaluate the prospects of the APTERR institution through experts' perception of the APTERR, which was established by the spillover effect from the APT institution. This study examined the current status and problems of the APTERR institution as recognized by experts and the prospects and improvements.

To this end, this study examined the APTERR institution through the Focus Group Interview (FGI) method. A focus group is a type of research where a group of participants are asked about their opinions, perceptions, and attitudes toward a certain concept, idea, product or service. Questions can be asked in an informal group setting where participants are free

to discuss the topic with other members. In general, a focus group consists of 8–10 participants who are guided by a researcher (Krueger and Casey, 2002). Thus, experts are allowed to freely discuss the APTERR institution based on their experiences and knowledge in this FGI.

Expert panel

This study used a non-probabilistic sampling method. Recruited experts had more than five years of experience with their institutions, so they understood the elicitation process of the APTERR institution and could identify its problems, as well as make well-informed prediction for the future. During the exploratory stage, discussion was unguided and unstructured. Eight experts were selected, and interviews were conducted from May 1 to August 31, 2021. They were asked to sign a consent form to show that they had attended and agreed to participate in this project. Further information on these participants is given on Table 1 below.

Research tools

The FGI of this study was conducted in the form of a free discussion of each person's thoughts and experiences in a comfortable atmosphere. Unstructured in-depth interviews were conducted with experts. The interviewer had no pre-determined set of specific questions. The experts were encouraged to talk about their opinions on the background, establishment process, role, problems, and future prospects of the APTERR institution.

Data collection and analysis

Data was collected through in-depth interviews with experts and related documents. As mentioned above, the FGI for this

Table 1. Focus group interview participants

	Age/Gender	Career
Panel 1	65/M	APTERR Official
Panel 2	40/F	APTERR Official
Panel 3	36/F	APTERR Official
Panel 4	45/F	APTERR Official
Panel 5	40/M	APTERR Official
Panel 6	57/F	APTERR Deputy Director
Panel 7	47/F	Government affiliated agency worker
Panel 8	41/M	Ministry of Agriculture Official

APTERR, ASEAN Plus Three Emergency Rice Reserve.

study was conducted through video interviews three times from May to August 2021. In this study, in-depth interviews with experts were recorded using a smartphone, and the collected data were transcribed after in-depth interviews. The contents of the collected data were repeatedly reviewed, their meaning was analyzed. Additionally, the collected data were analyzed and categorized through a coding process. In this process, another researcher who majored in international relations was asked to review the coding results to increase reliability through coding to extract meaningful terms and key phrases (Bogdan and Biklen, 1997).

The coding results were verified by other independent researchers. A triangulation method was utilized to increase the validity of this study. The triangulation method uses multiple tools in qualitative research to develop a comprehensive understanding of a phenomenon (Patton, 2002). Triangulation is considered a useful qualitative research strategy to test validity through the convergence of information from different sources (Johnson, 1997). The results of this study were reconfirmed by sending the contents to the focus group participating experts to determine whether there were any misinterpretations or omissions.

Results

Based on the collected data, this study derived the following results through qualitative analysis of participants' overall perception of the APTERR. The results of in-depth interviews with experts were conducted focusing on the background of the APTERR institutions, the process of establishment, problems with the current system, and perceptions of future prospects.

The establishment of the ASEAN Plus Three Emergency Rice Reserve (APTERR)

In 2002, prior to the establishment of APTERR, ASEAN members, together with China, Japan, and the Republic of Korea, launched a pilot project called the East Asia Emergency Rice Reserve (EAERR) as a result of fear of future recurrences of food crises in the 2000s.

The EAERR was considered a success, with earmarked reserves of nearly 787,000 metric tons. After executing several pilot projects, the EAERR was terminated in 2010 and transformed into a permanent mechanism. On October 7, 2011, the 10 ASEAN states, Japan, China, and Korea, signed the APTERR Agreement, which became legally binding on July 12, 2012 (Briones et al., 2012).

The establishment of the ASEAN Integrated Food Security

(AIFS) Framework was the catalyst for transitioning from a project to a permanent mechanism and developing the APTERR Agreement. Following the 2007–2008 food price crisis, which resulted in significant uncertainty in regional rice markets and export prohibitions and excessive import orders, the AIFS was adopted in 2009 (Trethewie, 2013).

Accordingly, in contrast to the ASEAN governments, the Plus Three governments have continuously demonstrated their commitment to the EAERR and the APTERR. Therefore, although Japan has been an important initial financial supporter of the initiative, the APTERR can be considered as a sub-institution of the APT.

The addition of the Plus Three nations to the ASEAN rice reserve scheme was a positive move in terms of resources committed to the reserves and momentum for the mechanism itself. However, it also led to new balances of power and regional leadership dynamics (Trethewie, 2013).

The development of the APTERR, as mentioned above, demonstrates not only the “need” to achieve international cooperation but also the help it can give to governments in terms of dependency. According to in-depth interview with experts, they were aware that credit for the successful operation of the EAERR was shared among the APT member states.

They recognized that the establishment of the APTERR was easily agreed upon by agricultural officials from the APT. Experts revealed their opinions about the background of the establishment of the APTERR as follows. The key answers of experts are summarized below.

The discussion of the establishment of an APTERR-like mechanism was not new as ASEAN used to have the ASEAN Emergency Rice Reserve (AERR) in 1978 to handle the food crisis at that time. Many decades later, food security in 2007–2008 spurred the ASEAN+3 countries to revive the unused AERR mechanism to develop more options in enhancing their capacity to respond to the needs of people during an emergency. It stimulated the ASEAN PT’s awareness of food security and encouraged them to cooperate in preventing the food crisis in the future (Panel Member 2).

In particular, Panel Member 2 was found to have the perception of “ASEAN centrality,” recognizing that Plus Three states participated in the institution that ASEAN had operated since 1978. The idea of ASEAN centrality means that the

ASEAN regime is and should remain at the core of Asian regional institutions, such as the ASEAN Regional Forum (ARF), APT, or the East Asian Summit (EAS). The ASEAN has struggled on several major initiatives, and global trends also require ASEAN to respond in politics and economics (Tay and Tijaja, 2017).

I think the discussion on suggestion of the establishment of the APTERR were made when the ASEAN+3 leaders realized the success of EAERR pilot project and wanted to continue their mutual ambition as a permanent scheme with its own Agreement, so they could perform its implementation and activities with its own funding and operation (Panel Member 3).

The Agreement on ASEAN Food Security Reserve, signed in New York on 4 October 1979, paved the way for establishing the AERR for the purpose of meeting emergency demand requirements. The East Asia Emergency Rice Reserve (EAERR) pilot project, which was implemented from 2004 to 2009, was a reference case for the APTERR (Panel Member 4).

The above two experts also answered that the APT institution had established the APTERR after successfully operating the EAERR pilot project.

In 2002, the East Asia Emergency Rice Reserve (EAERR) pilot project, under the cooperation among the ASEAN member states and Plus Three states (Japan, China, and Korea) was established. It led to the establishment of the APTERR since ASEAN Plus Three realized the importance of food security in the region (Panel Member 5).

Based on my perspective, I believe that the Plus Three countries have most strongly supported the establishment of the APTERR because of their great willingness to facilitation and coordination in food security (Panel Member 6).

The basic objective of APTERR is to make a joint efforts to solve food security issues in East Asia and respond to rice trade shocks in the ASEAN+3 region. When deciding to participate in APTERR, member countries wished to ensure an effective and timely response to the supply and price of food during the potential crises… The establishment of the APTERR was especially necessary in ensuring food security in

emergency situations, responding to arising disasters is a matter that requires joint efforts of countries in the region (Panel Member 7).

The two panel members also recognized that the APT institution played a central role in the establishment of the APTERR institution in East Asia.

It had been a long time since the 2004 establishment of East Asia. Emergency Rice Reserve (EAERR) pilot project that ended in 2010. I think participants at the 12th ASEAN Plus Three Summit and 9th AMAF+3 meeting agreed to change the name of EAERR to APTERR. Then they prepared a draft APTERR agreement- with a total amount of rice of around 787,000 MT for utilization means of Tier 1, Tier 2, and Tier 3. However, I haven't seen any Tier 2 programs (Panel Member 8).

As such, most experts were familiar with the process and background of establishing the APTERR. They recognized that the APT established the APTERR after operating the EAERR pilot project to deal with food crises in East Asia. They also agreed that the APTERR was an international institution based on the APT.

Operation and role of the ASEAN Plus Three Emergency Rice Reserve (APTERR)

The primary objectives of the APTERR are to strengthen food security and provide poverty alleviation and malnourishment eradication among its members without distorting normal trade, while the common goal of the APTERR parties is the assurance of food security in the APT. Experts are positively aware of the APTERR's role in preventing the food crisis in East Asia. Their answers are as follows.

Food crisis is the main reason for the need of establishing the APTERR as a regional mechanism in ensuring food security. The APTERR's vital objective is to strengthen food security in the member countries in an emergency and for other humanitarian purposes, such as poverty alleviation... The APTERR has been continuously providing rice assistance to its members since its establishment. The amount of rice contribution and the number of participants have rapidly increased. The public has gradually recognized APTERR's achievement as one of vital mechanisms to strengthen food

security. Obviously, during the COVID-19 pandemic, the APTERR has been acknowledged as the significant regional mechanism to handle looming food insecurity (Panel Member 2).

The primary goal of the APTERR is to strengthen the ASEAN emergency response mechanisms to both expected and unexpected crises. It has the specific objective of strengthening food security- both access to and availability of the staple food, namely rice, and eradication of malnourishment in the developing countries of ten member the ASEAN. It was also aimed to strengthen the bilateral cooperation between the ASEAN institution and Japan, South Korea and China, under the ASEAN Plus Three (Panel Member 5).

The addition of the Plus Three governments to ASEAN's regional emergency rice reserve mechanism may bring new dynamics to the leadership and balance of power in East Asia. The new dynamics could present challenges, which could be exacerbated by the political and strategic importance of rice in Asia. The APTERR can be one of the more significant aspects of APT cooperation due to the level of tangible commitment and the political importance of rice in the region (Tretthewie, 2013).

Current problems of the ASEAN Plus Three Emergency Rice Reserve (APTERR)

Experts answered that the APTERR institution is running well without major problems. Their answers are as follows.

In the meantime, members, especially, ASEAN members, should play more active roles in contributing rice to support the members affected by crises. Currently, the main donors are Japan and Korea (Panel Member 2).

Throughout its 10 years of existence, the APTERR has played as an important role in addressing food instability in the region (Panel Member 4).

The APTERR is successful because there are many mechanisms and a great deal of coordination among the member states (Panel Member 5).

Regarding the operation of APTERR, I think that there is an aspect that is financially dependent on the Plus Three countries

such as Japan, which needs to be improved (Panel Member 6).

The APTERR could be considered an elite process of policy making where a cooperative mechanism was formulated to bring macroeconomic stability and resilience to food security in case of emergency (Panel Member 8).

Most experts replied that the APTERR was a successful food security institution. The APTERR's significant challenges include balancing storage costs with financial sustainability and food security goals. The Member States must provide strong financial support for the operation of the system. However, financial aid has been largely dependent on the Plus Three countries that contributed USD 1 million each to the Endowment Fund on the establishment of the APTERR, while the member states of ASEAN each contributed between USD 83,000 and USD 107,500. Regarding the annual contributions towards operation costs, the Plus Three governments fund USD 75,000 and ASEAN governments between USD 6,000 50 USD 8,000 each year. Japan in particular has been a significant supporter (Trethewie, 2013).

Prospects of the ASEAN Plus Three Emergency Rice Reserve (APTERR)

Experts predict that the APTERR institution is able to cope with food crises in the region without relying on Australia, Brazil, or the United States. They are optimistic about the prospects of the APTERR.

For large-scale food production, there is no need to depend on other countries since some ASEAN countries have high potential for rice production (Panel Member 1).

I think the current system under ASEAN Plus Three cooperation is suitable. The Council is co-chaired by an APTERR Party from the ASEAN Member States and an APTERR Party from the Plus Three Countries by annual rotation in an alphabetical order (Panel Member 3).

Basically, it started as a bilateral technical assistance program between Japan and ASEAN. However, it became a form of multilateral regional integration involving ASEAN +3. Similarly, the APTERR could evolve further in the future (Panel Member 5).

The APTERR is a food security institution made up of the ASEAN and the Plus Three governments. According to the result, the APTERR is recognized as a successful international institution. Experts offered a positive prospect of the APTERR, which carries out both funding and emergency rice stockpiling. They mentioned that Japan and Korea had contributed to the development of the APTERR and they would be the key donors in the future. However, experts also replied that ASEAN would play a central role in the operation of the APTERR.

Discussion

Institutions can be seen as “socially constructed templates for action” which affect actors’ behavior through their objective existence (Barley and Tolbert, 1997). It is a useful definition to cover unofficial institutions which affect actors. However, in this thesis, for clear analysis of government work, an institution is defined as “formal (and official) rules for action”. That is because the focus of this thesis is the government and its policy process. Unofficial institutions are hardly considered in the policy process.

Institutionalization refers, in this thesis, to “the process through which social processes, obligations, or realities gain rule-like status through the establishment of rules and procedures that affect actor interactions and are utilized to build integrated policy, including protocol for government activities.” (Zucker, 1986). In other words, it is the process of turning intentions into objective systems that function to carry out real activities based on those intentions.

In order for institutionalization to occur, the organizations that will be “institutionalized” should be formal institutions because institutionalization is a formal process. In other words, they need to be established through official means such as a treaty, charter, constitution, agreement, convention, or other similar formality. Since the institutions have already been formalized, institutionalization can be seen as adding another layer of complexity to the behavior of the institutions, layering new values and behaviors on top of existing ones, with consideration to a new, higher level of actors. In the case that the new level of actors is composed of governments, an institutionalized organization will have a new focus on issues such as building integrated policy and introducing protocol for government activities (Tolbert and Zucker, 1996).

This study examines the APTERR institution established for

food security in East Asia, which is a sort of institutionalization of international cooperation to cope with the food crisis in the region.

Hermann (1963) distinguished three characteristics of crises from other unpleasant experiences in a seminal study: surprise, danger, and rapid response. A troubling incident cannot reach the level of crisis unless it is unexpected, poses a serious level of threat, and necessitates a rapid reaction (Hermann, 1963). Coombs (2007) expanded on Hermann's organization-centered definition by emphasizing the perspectives of stakeholders. He defined a crisis as any unforeseen event that is not professionally managed and has a negative impact on the organization. According to Seeger et al. (1998), a crisis is defined by four characteristics: particular, unexpected, and non-routine incidents or sequence of events that generate a high level of uncertainty and a threat or perceived threat to an organization's top priority goals.

Southeast Asia consumes a large amount of rice. It is also a large producer, making a food crisis more likely, especially considering that average income per person in this region is low. Additionally, rice production requires a lot of water, which means that this location is geographically open to floods. In turn, droughts can easily occur as well.

Out of all these crises, the APTERR is designed to focus on food scarcity. As it is a relatively new institution, the success of the APTERR cannot be determined just yet. But one can assume that through the APTERR, if a food crisis does happen once again, price inflation and international disputes can be prevented or significantly reduced. Due to the involvement of the APTERR in the rice market, it is safe to say that 1) there will be little to no speculation of capital or profit, and 2) there will be detailed and organized pricing and distribution of products, which will eventually balance out the food insecurity in individual nations and reduce competition in the global market.

The APTERR is also designed to handle issues of poverty reduction, rice price stabilization, and the establishment of rice stocks. Major grain producers such as Thailand and Vietnam contributed about 90,000 tons of rice, while Japan, China and South Korea donated a combined 700,000 tons to the reserve. Thus, in total, the reserve was around 787,000 tons when it was fully established in October 2011 (Clarete et al., 2013). However, clarity in terms of emergency and conditions for stock release has been the major issue affecting APTERR

(Briones, 2011).

Therefore, based on these examples and assumptions, the APTERR can be considered a good example of international cooperation, and success can be more aptly determined if a food crisis reoccurs. Some positive points and newsworthy items from the APTERR are summarized below in Table 2.

The reserve is utilized as an emergency store to give aid in the event of a natural disaster or for humanitarian causes such as poverty reduction or malnutrition eradication operations (Kim and Plaza, 2018). Tier 1 - through special commercial contracts or sales; Tier 2 - through emergency grants and loans; or Tier 3 - delivery of donated rice in times of severe difficulties (Belesky, 2014; Kim and Plaza, 2018).

The APTERR has launched a Tier 3-delivery of donated rice¹¹ in times of severe difficulties-program since 2011. Japan contributed 50 metric tons of canned rice to Thailand after a flash flood in. Second, in 2012, Japan donated 200 metric tons of rice to Indonesia to support its poverty alleviation program. APTERR has voluntarily provided 8,260 metric tons of rice to four beneficiary governments since it was transformed into a permanent scheme. Table 3 shows the implementation of the APTERR Tier-3 programs since 2013 (Kim and Plaza, 2018).

According to in-depth interviews with experts, there is widespread awareness of the fact that credit for the successful operation of the EAERR was shared among the APT member states. They recognized that the establishment of the APTERR was easily agreed upon by agricultural officials from the APT, since they shared the common experience of running EAERR institutions that had been successfully performed.

The primary goals of the APTERR are to ensure food security, alleviate poverty caused by high food prices, and eradicate malnourishment among its member countries without distorting normal international trade of food; the whole common goals of the APTERR parties is the assurance of food security in the APT region. Experts are positively aware of the APTERR's role against the food crisis in East Asia. Experts predict that the APTERR institution is able to cope with the food crisis in the region without relying on Australia, Brazil and the United States. They are optimistic about the prospects of the APTERR.

One advantage of the APTERR is cost-effectiveness. It does not call for any additional financial burden of procuring and storing stocks for the regional scheme. Furthermore, the size of standby stocks available can be estimated to meet an emergency

Table 2. APTERR's major activities and accomplishments from 2011–2018

Date	Activity/Accomplishments
2011 Oct	The 11th meeting of the ASEAN Ministers of Agriculture and Forestry and the Ministers of Agriculture of the People's Republic of China, Japan, and the Republic of Korea meet in Indonesia to establish the ASEAN Plus Three Emergency Rice Reserve (APTERR)
2013 Mar	APTERR was officially established as a permanent mechanism as the first meeting of the APTERR Council was held in Bangkok, Thailand. This also marked the official launch of the APTERR Secretariat office in Bangkok.
2012 Apr	On April 17, 2012, Japan accepted the APTERR agreement.
2012 Jul	The APTERR agreement enters into force after ratification from the APTERR parties.
2013 Nov	In response to the damage caused by Super Typhoon Yolanda, the government of Japan approved a project implemented by the APTERR to deliver 500,000USD worth of emergency rice to the Philippines ¹⁾ .
2014 May	Vietnam pledges to contribute 14,000 tons of rice to the APTERR after the second meeting, held on May 29–30 in Hanoi ²⁾ .
2014 Nov	The 17th ASEAN+3 Summit was held in Nay Pyi Taw, Myanmar. Prime Minister Abe from Japan expressed his expectations for the APTERR system and highlighted Japan's assistance of rice for Laos and the Philippines and his intention to strengthen public-private cooperation for the "food value chain" and also asked for the relaxing and lifting of restrictions on imports from Japan ³⁾ .
2015 Apr	At the 3rd meeting of the APTERR, leaders discussed issues related to project implementation of the APTERR agreement, such as realizing the work plan and budget plan for the fiscal year 2015 ⁴⁾ .
2016 May	Turnover of 240 MT of Japan's donation through the APTERR Tier 3 programme to help people affected by typhoon Melor (Nona) in Catarman, Philippines. Under this programme, the National Food Authority (NFA), in cooperation with the Department of Social Welfare and Development (DSWD), distributed 240-MT of rice to 7,992 affected families.
2016 Aug	Distribution of 150-MT rice to help those affected by prolonged drought in Takeo and Svay Rieng provinces in Cambodia.
2016 Oct	Distribution of 60-MT rice in Tbong Khmom and Prey Veng provinces in Cambodia.
2016 Nov	The APTERR field trip on rice cultivation and logistic system in Thailand. APTERR staff visited the Rice Seed Centre and the Laemchabang Port in Chonburi province, as well as the Kung Krabaen Bay Royal Development Study Centre and the Wangkaset Garden in Chanthaburi province.
2017 Jul	Tier 3 rice inspection was held in Vientiane, Lao PDR.
2017 Sep	Rice inspection of 250-MT rice under Tier 3 programme.
2017 Nov	Handing over ceremony of 267-MT rice contributed by the Republic of Korea to affected people in the Rakhine State, Myanmar
2018 Jan	The National Food Authority (NFA) of the Philippines organized a ceremonial turn-over and distribution of 225 MT of rice
2018 Jan	178-MT rice from the Republic of Korea was distributed to Cambodian citizens affected by drought and flash flood.
2018 Feb	5,700-MT rice was delivered to Vietnam, distributed to affected people in six provinces, namely Binh Dinh, Khanh Hoa, Phu Yen, KonTum, Gia Lai, and Dak Lak.
2018 May	A meeting on implementing an experimental Tier 1 program between the Philippines and Japan was held at the National Food Authority (NFA) headquarter in Quezon City, the Philippines.
2018 Mar	The Japanese government contributed 225-MT rice under APTERR's Tier 3 programme and was allocated to 22,500 poor people affected by typhoon Songka and Dorksouri in Khammoune and Savannakhet provinces
2018 May	In Vietnam, people affected by Typhoon Damrey received 4,700-MT rice donated by the Republic of Korea through the Tier 3 program.
2018 Jun	Japan donated 225-MT through the Tier 3 program to help poor residents affected by floods in Khammouane and Savannakhet provinces, Lao PDR.

Table 2. Continued

2018 Jun	APTERR staff embarked on a field trip to Thai Farmers' Way at the Lifestyle and Spirit of Thai Farmers Learning Centre in Suphanburi Province, Thailand. The trip aimed at broadening staff member's knowledge and expertise on Thai farmers' way of life as well as new ways to improve the production and quality processes of rice seeds in Thailand for the development of agriculture and food security.
2018 July	General Manager of the APTERR Secretariat, Mr. Chanpithya Shimphalee, attended the rice distribution to the poor in the Magway Region of Myanmar. The Department of Agriculture (DOA), Ministry of Agriculture, Livestock and Irrigation led by Deputy Director-General Mr. Aye Ko Ko held the event.

News items are all taken from the APTERR website unless otherwise noted.

¹⁾ReliefWeb, OCHA (2019)

²⁾Dung (2014).

³⁾Japan Ministry of Foreign Affairs (2019)

⁴⁾Ministry of Primary Resources and Tourism of Brunei Darussalam (2019)

Table 3. The implementation of the ASEAN Plus Three Emergency Rice Reserve (APTERR) tier 3 programs since 2013

Year	Programme	Donor country	Recipient country	Quantity (MT)
2013	Rehabilitation programme for Typhoon Pablo victims	Japan	The Philippines	230
2013	Drought and flood	Japan	Lao PDR	400
		China		800
2014	Emergency response to Super Typhoon Haiyan	Thailand	The Philippines	5,000
		Malaysia		350
		Japan		580
2015	Preposition of stockpiled rice reserve	Japan	Cambodia	210
			The Philippines	240
2016	Preposition of stockpiled rice reserve	Japan	The Philippines	225
			Lao PDR	225
2017	Preposition of stockpiled rice reserve	Korea	Myanmar	500
			Cambodia	250
2017	Preposition of stockpiled rice reserve	Japan	Myanmar	500
2018	Flood	Japan	Lao PDR	225
2018	Emergency response to Typhoon Damrey	Korea	Vietnam	4,700
2019	Emergency response to people affected by a tropical cyclone	Japan	The Philippines	560
2020	Rice contribution to help people overcome hardships caused by natural disasters	Japan	Cambodia	222

Source: APTERR Secretariat (2021).

in any member state and release from the APTERR during emergency may be more reliable and quicker than normal commercial imports.

However, the APTERR has some weaknesses. Lack of specificity in the conditions for defining an emergency can be an obstacle to rapid response in the case of an emergency. In addition, decision-making by consensus can also lead to lackluster results in the case of addressing an emergency.

In conclusion, this study revealed that the APTERR could contribute to regional cooperation and integration. This study has the significance of providing practical and academic primary data on the international institution and regional integration issues regarding food security in East Asia.

Conflicts of Interest

The authors declare no potential conflict of interest.

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Not applicable.

Ethics Approval

This article does not require IRB/IACUC approval because there are no human and animal participants.

Author Contributions

The article is prepared by a single author.

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References

- APTERR. 2018. Summary report of the 6th Meeting of ASEAN Plus Three Emergency Rice Reserve (APTERR) Council. Proceedings of the Summary Report of the 6th Meeting of ASEAN Plus Three Emergency Rice Reserve (APTERR) Council, Vientiane, Laos.
- Barley SR, Tolbert PS. 1997. Institutionalization and structuration: studying the links between action and institution. *Organ Stud* 18:93-117.
- Belesky P. 2014. Regional governance, food security and rice reserves in East Asia. *Glob Food Sec* 3:167-173.
- Bogdan RC, Biklen SK. 1997. Qualitative research for education: an introduction to theory and methods. 3rd ed. Allyn & Bacon, Needham Heights, MA, USA.
- Briones RM. 2011. Regional cooperation for food security: the case of emergency rice reserves in the ASEAN Plus Three. Available from: <https://reliefweb.int/sites/reliefweb.int/files/resources/adb-wp18-regional-cooperation-food-security.pdf>. Accessed on Mar 12, 2021.
- Briones RM, Chavez EC, Durand-Morat A, Wailes EJ. 2012. Climate change and price volatility: can we count on the ASEAN plus three emergency rice reserve? Available from: <http://hdl.handle.net/11540/1380>. Accessed on Mar 12, 2021.
- Clarete RL, Adriano L, Esteban A. 2013. Rice trade and price volatility: implications on ASEAN and global food security. ADB Economics Working Paper Series No. 368. Asian Development Bank, Manila, Philippines.
- Coombs WT. 2007. Ongoing crisis communication: planning, managing, and responding. In Handbook of risk and crisis communication. 2nd ed. Heath RL, O'Hair HD (ed). Routledge, London, UK.
- Dawe D. 2010. The rice crisis: markets, policies and food security. Routledge, London, UK.
- Dung NT. 2014. Vietnam contributes 14,000 tonnes of rice per year to APTERR. Available from: <http://ven.vn/vietnam-contributes-14000-tonnes-of-rice-per-year-to-apterr-21514.html>. Accessed on Mar 12, 2021.
- Food and Agriculture Organization of the United Nations [FAO]. 2009. How to feed the world in 2050. Available from: http://www.fao.org/fileadmin/templates/wsfs/docs/expert_paper/How_to_Feed_the_World_in_2050.pdf. Accessed on Mar 12, 2021.
- Guo K. 2007. Exchange rates and asset prices in an open economy with rare disasters. Available from: <https://www.dallasfed.org/~media/documents/institute/events/2008/080324guo.pdf>. Accessed on Mar 12, 2021.
- Hermann CF. 1963. Some consequences of crises which limit the viability of organizations. *Admin Sci Q* 8:61-82.
- Japan Ministry of Foreign Affairs. 2019. <https://www.mofa.go.jp/> Accessed on Oct 1, 2019.
- Johnson RB. 1997. Examining the validity structure of qualitative research. *Education* 118:282-293.
- Kim K, Plaza PP. 2018. Building food security in Asia through internal agreement on rice reserves. Available from: <https://www.adb.org/publications/building-food-security-asi-a-through-international-agreements-rice-reserves>. Accessed on Mar 12, 2021.
- Kimura F, Thangavelu SM, Narjoko D, Findlay C. 2020. Pandemic (COVID-19) policy, regional cooperation and the emerging global production network. *Asian Econ J* 34:3-27.
- Krueger RA, Casey MA. 2002. Designing and conducting focus group interviews. In Social analysis, selected tools and techniques. Krueger RA, Casey MA, Donner J, Kirsch S, Maack JN (ed). The World Bank, Washington, DC, USA. pp 4-23.
- Ministry of Primary Resources and Tourism of Brunei Darussalam. 2019. <http://www.mprrt.gov.bn/Theme/Home.aspx>. Accessed on Oct 1, 2019.
- Office for the Coordination of Humanitarian Affairs [OCHA]. 2019. <https://www.unocha.org/>. Accessed on Oct 1, 2019.
- Paarlberg R. 2013. Food politics: what everyone needs to

- know. Oxford University Press, New York, NY, USA.
- Patton M Q. 2002. Qualitative evaluation and research methods. 3rd ed. Thousand Oaks, CA: Sage Publications.
- Schutter OD. 2009. Crisis into opportunity: reinforcing multi-lateralism. Available from: <https://www2.ohchr.org/english/issues/food/docs/SRRTFsecondglobalfoodcrisisnote.pdf>. Accessed on Mar 12, 2021.
- Seeger MW, Sellnow TL, Ulmer RR. 1998. Communication, organization, and crisis. *Ann Int Commun Assoc* 21:231-276.
- Takashi T, Suwunnamek O. 2011. Regional cooperation for food security in East Asia: from rice reserve APTERR and information system AFSIS to common agricultural policy. Proceedings of the Presentation at the 7th Asian Society of Agricultural Economists (ASAE) Conference, Hanoi, Vietnam.
- Tay SSC, Tijaja JP. 2017. Global megatrends: implications for the ASEAN economic community. Available from: <https://asean.org/global-megatrends-implications-for-asean-economic-community>. Accessed on Mar 12, 2021.
- Tolbert PS, Zucker LG. 1996. The institutionalization of institutional theory. In *Handbook of organization studies*. Clegg SR, Hardy C, Nord WR (ed). Sage Publishing, London, UK. pp. 175-190.
- Tolentino B. 2014. ASEAN cooperation is crucial to global food security. Available from: <https://blogs.worldbank.org/eastasiapacific/asean-cooperation-crucial-global-food-security>. Accessed on Mar 12, 2021.
- Trethewie S. 2013. The ASEAN Plus Three Emergency Rice Reserve (APTERR): cooperation, commitment and contradictions. Available from: <https://www.rsis.edu.sg/rsis-publication/nts/323-the-asean-plus-three-emergency/#.YVbODdpBzcs>. Accessed on Mar 12, 2021.
- United Nations [UN]. 2010. Updated comprehensive framework for action: high-level task force on the global food security crisis. UN, New York, NY, USA.
- United Nations Economic Social Commission for Asia and the Pacific [UNESCAP]. 2009. Towards sustainable agriculture and food security in Asia and the Pacific. Available from: <https://digitallibrary.un.org/record/658542>. Accessed on Mar 12, 2021.
- Viravaidya M, Hayssen J. 2001. *Strategies to strengthen NGO capacity in resource mobilization through business activities*. Available from: https://data.unaids.org/publications/irc-pub06/jc579-strategies_ngo_en.pdf. Accessed on Mar 12, 2021.
- Zucker LG. 1986. Production of trust: institutional sources of economic structure, 1840-1920. *Res Organ Behav* 8:53-111.

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