Ministry of Agriculture and Cooperatives(MOAC)
Kingdom of Thailand
Japan International Cooperation Agency(JICA)

No.

The Development Study on East Asia/Asean Rice Reserve System

Final Report

November 2002

Pacific Consultants International

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タイ国　農業・協同組合省（MOAC）
国際協力事業団（JICA）

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最終報告書

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The exchange rate applied in this study are:

US$	1.00	=	Baht 43.71
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(as of October 2002)

PREFACE

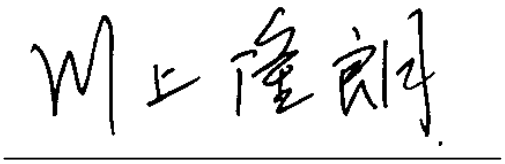
In response to a request from the Government of the Kingdom of Thailand, the Government of Japan decided to conduct the Study on East Asian/ASEAN Rice Reserve System and entrusted the study to Japan International Cooperation Agency(JICA).

JICA sent to the Kingdom of Thailand, a study team headed by Mr. Atsushi SAITO, Pacific Consultants International, four (4) times between May 2002 and November 2002.

The team held discussions with the officials concerned of the Government of the Kingdom of Thailand and ASEAN+ 3 member countries, and conducted field survey at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Kingdom of Thailand for their close cooperation extended to the team.



Takao Kawakami
President
Japan International Cooperation Agency

November 2002

Mr. Takao Kawakami
President
Japan International Cooperation Agency
Tokyo, Japan

Letter of Transmittal

Dear Sir,

We are pleased to submit formally herewith the Final Report of "The Development Study on East Asia / ASEAN Rice Reserve System in The Kingdom of Thailand".

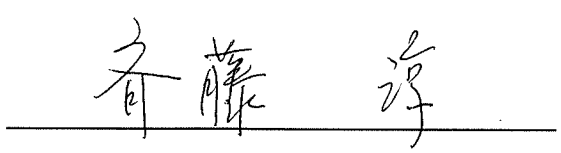
This report compiles the results of the Study conducted from May 2002 through October 2002 by the Study Team organized by Pacific Consultants International under the contract with JICA.

We Tear propose in this report the new mechanism of "East Asia Emergency Rice Reserve System" that consists of 1) variety of releasing method; 2) new trigger system; 3) release condition; 4) buying method of reserved rice; 5) utilization of turn-over rice; and 6) organization and financial plan. We also propose the pilot project for delineating details of the system to be more effective and practical.

We would like to express our sincere gratitude and appreciation to the officials of JICA and the JICA advisory Committee. We also would like to send our great appreciation to all those who extended their kind assistance and cooperation to the Study Team, in particular, the Ministry of Agriculture and Cooperative and the concerned organization in ASEAN +3 countries.

We hope that the report will be able to contribute significantly to strengthen the food security in the East Asia / ASEAN region.

Very truly yours,



Astushi Saito
Team Leader,
The Development Study on
East Asia/Asean Rice Reserve
System in the Kingdom of Thailand

The Development Study on East Asia/ASEAN Rice Reserve System

Study Period: May 2002 – November 2002
Ministry of Agriculture and Cooperatives

Outline of the Study

1 Introduction

1.1 Background of the Study

Rice is the staple food in East Asia and ASEAN member countries. However, only a few amount of rice goes into foreign trade, which is approximately 6% of the total production in foreign trade. Accordingly, the amount of production and stock largely affects the price of rice in the market, resulting in price fluctuation. Recent price decline resulting from increase of rice production negatively affects the lower income and poor families in the rural area. Meanwhile, large natural disasters have often caused the urgent importation and assistance of rice in Asian countries.

To response it, ASEAN+3 countries have own national reserve to secure food security. In addition, ASEAN has ASEAN Emergency Rice Reserve (AERR) under ASEAN Food Security Reserve (SFSR) system as a regional cooperation scheme. This AERR was established in 1979, and has 87,000 ton of reserve, which is equivalent to the amount of rice consumed in 0.4 days or 0.1 % of total rice consumed per year. ASEAN country earmarked AERR to commit his contribution. However, size of AERR is too small to use and release were basically negotiated under loan basis between supplying and demanding countries, resulted in loosing timing and advantages. Due to such insufficient size and release mechanism, AERR has never been used since its establishment, accordingly strengthening of food security by improving of AERR mechanism is required.

In light of above, the Meeting of the ASEAN Ministers on Agriculture and Forestry (hereinafter referred to as “the AMAF”) in 1998 was determined that the AERR needs to be restructured, and early action was required in 1999. For materializing this matter, the conduct of the Feasibility Study on Food Security and Rice Reserve System in East Asia was approved in the First Meeting of the AMAF+3, held in October 2001. The MOAC of the Royal Thai Government was appointed to undertake it in the same meeting.

This study was formulated under the request of technical cooperation from Thai Government to Japanese Government on this feasibility study.

1.2 Objectives of the Study

The Study aims at contributing to strengthen food security in East Asia through achieving the following three objectives:

- Making recommendations on strengthening of food security and rice reserve system of ASEAN+3 through reviewing AERR under AFSR and national reserve system of ASEAN+3
- Supporting MOAC of Thailand to smoothly organize series of Technical Meeting of Rice Reserve（TMRR）.
- Carrying out the technical transfer to staff of MOAC.

1.3 Study Area

This Study covers ASEAN+3 (China, Japan and Korea).

2 Principle of East Asian Rice Reserve System (EAERR)

In response to the requirement caused from large calamity, EAERR should take quick and flexible actions. For this purpose, EAERR should be delineated from the following point of views in

Note: Earmark system means to allot a part of normal rice stock. Stockpiling system means to pile up rice for storing physically in the warehouse.

reflection to the constraints of size and mechanism of existing AERR:

- Adequate size of rice reserve
- Quick action to response emergency requirement
- Clear and simple mechanism
- Multiple function
- Advantages to use EAERR in emergency case
- Expansion of participating countries to the +3 countries

It is noted that mechanism of EAERR, in particular trigger system and release conditions should follow "Principles of Surplus Disposal" of FAO as well as be kept consistency with food aid by international organization like WFP.

3 Size of East Asian Rice Reserve (EAERR)

3.1 Target Size

As the calculation process, the Study Team examined various of calculation approaches such as approach based on usual market requirements (UMR), approach based on import volume of in ordinal and in emergency, FAO standards, size of disaster and approach based on the poor harvest in exporting countries. As the result, the Study Team concluded that the approach based on the UMR, which gives 1,750 thousand to of rice reserve, is the most appropriate and acceptable. This approach is to define each country's necessary reserve volume as the difference between ordinal import volume (UMR) and emergent import volume. The size of EAERR is the sum-up of the necessary reserve volume minus national reserve volume by country (the country having national reserve more than the necessary reserve volume is exceptional).

Target Size of EAERR: 1.75 million ton

3.2 Reserve Method

EAERR is reserved under "earmarked " and "stockpiled" system. ASEAN+3 country voluntarily decide own contributions in short term, but long term ASEAN+3 country should accept allocation of rice reserve with certain rules, which ASEAN+3 should agree in future.

Stockpiled rice reserve is mainly used to realize first aid just after the calamity, while earmarked rice reserve is mainly used to response large amount of requirements to cover yearly basis food shortage.

4 Mechanism of East Asian Rice Reserve System (EAERR)

EAERR is characterized mainly from 7 components such as variety of release method, trigger system, release conditions, reserved rice procurement, utilization of turn-over rice, organization and financial management system. Overall mechanism of EAERR is shown in Figure 1.

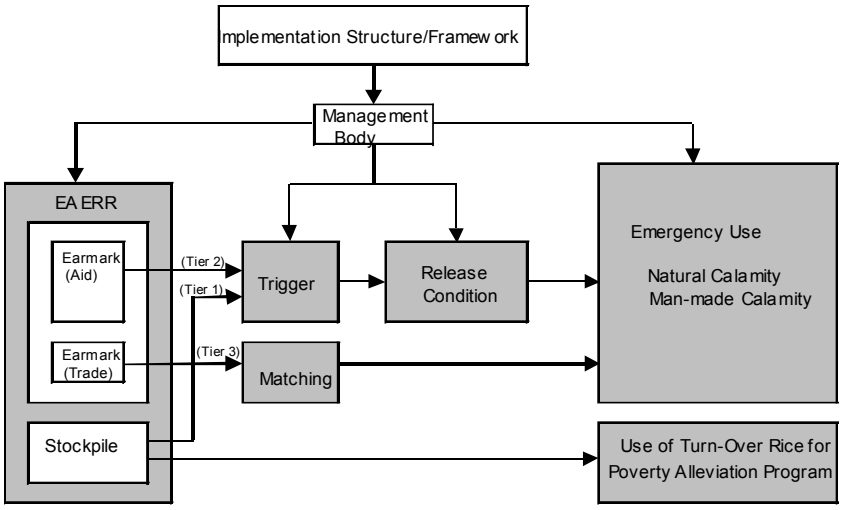


Figure 1 Overall Mechanism of EAERR

4.1 Releasing Method

The following three sorts of releasing method of EAERR are proposed:

- Release of earmarked reserve rice under commercial trade basis with matching service (Tier 1)
- Release of earmarked reserve rice under food aid basis (Tier 2)
- Release of stockpiled reserve rice under first aid (Tier 3)

The release of reserve rice under **Tier 1** is to provide matching service between supplying and demanding countries. Both countries negotiate price, quality, payment conditions and releasing timing, etc. in prior to in facing the emergency. It is expected to encourage forward contract of rice in emergency.

The release of reserve rice under **Tier 2** is to provide food aid to demanding country and is expected to deal with huge amount of rice reserve. It is of necessity to be justified with appeal from the third party like international organization in prior to carrying out the release of rice.

The release of reserve rice under **Tier 3** is to provide stockpiled rice for first aid to demanding country under automatic trigger system. In case there is no opportunity to release for first aid during certain period, turn-over rice will be utilized for poverty alleviation program.

Table 1 Characteristics of Release Method

	Earmarking Rice		Stockpiling Rice
	Tier 1	Tier 2	Tear 3
Characteristics of Release	Release under Commercial Base in Emergency	Release under Food Aid in Emergency	Release for First Aid in Emergency
Acquisition	Forward contract	Contract after Appeal by an international agency	Donation
Trigger	Not applicable	Request Base Trigger System	Automatic Trigger System
Release condition	Contract base	Emergency release guideline (loan/free)	Emergency release guideline (free)
Release price	As specified in the contract	As specified in the contract	Free

4.2 Trigger System

Two types of the trigger system are proposed to secure quick response, simple procedure and accountability of release effective response to emergency requirements, which are “automatic trigger system” and “request based trigger system”. Automatic trigger system is to release rice reserve based on the pre-set criteria in order to secure quickness of actions. It is mainly adopted for stockpiled reserve. While, the request based trigger system is to release rice reserve based on request from demanding country with appeal of international organization (such as FAO, WFP). This process aims mainly at clarifying justification of necessity of food assistance in emergency. This trigger system is mainly for large amount of rice demand on earmarked reserve.

4.3 Release Conditions

There are possibly grant and onerous releases under EAERR. The grant is applied for the release of stockpiled reserve, while the onerous condition is applied for the release of earmarked reserve. The onerous release will be made based on the guideline.

4.4 Utilization of Turn-Over Rice

Stockpiled reserve has time limit to be stocked. In particular, reserved rice should be turned over within certain period. To effectively utilize the turn-over rice, it is proposed to utilize it for poverty alleviation programs in ASEAN+3 under grant and onerous bases. Based on the request from ASEAN+3, programs on food for education, food for urban poor and food for child welfare should be taken into consideration.

4.5 Management of EAERR

Various sorts of release method and introduction of stockpiled reserve increase work volume of EAERR. To smoothly manage these works under EAERR, it is of great necessity to establish dedicated management body, namely, MTEAERR. MTEAERR is proposed to be set up under SOM-AMAF+3 to responsible for operation and management of rice reserve and coordination among ASEAN+3.

4.6 Principles of Cost Sharing of EAERR

Since the earmarked rice may not increase any financial burden, the cost of expanding earmarked reserve is negligible, while the stockpiled reserve requires cost of rice procurement, transportation and stock regularly. In addition, cost of management body is required. These costs should be voluntarily shared by certain countries in short term, but be allocated under certain agreed rules to ASEAN+3.

5 Action Plan

5.1 Phasing Plan

ASEAN+3 has already agreed to strengthen rice reserve system, various situations regarding financial capability, and demand and supply of rice among them might be obstacle to achieve full consensus on the EAERR. Therefore, it is proposed to establish EAERR system step by step in terms of system expansion, cost sharing and participating countries. In the short term, pilot project on the EAERR is proposed to carry out for three years. Based on the experience of the pilot project, EAERR will be substantially implemented from the medium term period. Table 2 shows phasing development plan of EAERR.

5.2 Implementation of Pilot Project

The pilot project aims at delineating details of system and organization, examining efficient management measures, and learning and accumulating know-how of EAERR management. Accordingly, the pilot project should have the same function as the EAERR.

(1) Procurement of Rice Reserve

Earmarked and stockpiled reserve should be introduced to the pilot project, which is the same as EAERR. Amount of both size is decided by each ASEAN+3 country on a voluntary basis.

(2) Size of Pilot Project

In the pilot project, 23,000- 25,000 ton of stockpiled reserve is at least required to maintain dedicated management body (MTEAERR).

(3) Organization

Special steering committee should be organized under AMAF+3 to supervise management team for EAERR (MTEAERR), which should be established to devotedly manage the EAERR.

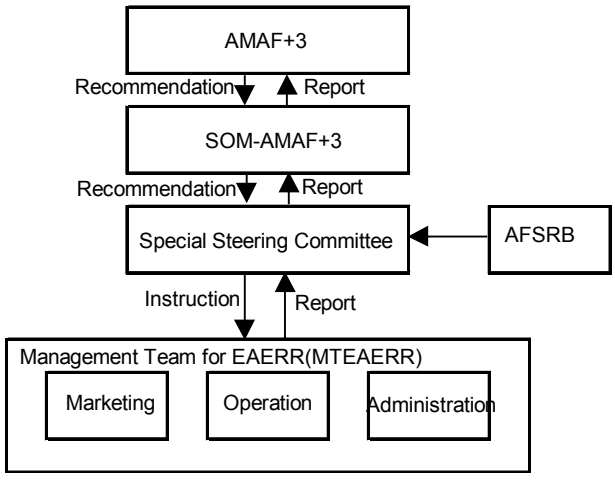


Figure 2 Management Structure of EAERR

(4) Cost

The cost of the pilot project is expected 686,360 USD in the 1st year, 738,160 USD in the 2nd year and 765,160 USD in the 3rd year.

(5) Implementation

To start the pilot project as soon as possible, Thai Government should responsible to lead other ASEAN+3 countries to set up Special Steering Committee and MTEAERR.

Table 2 Phasing Development Plan

	Existing AERR	Achievements		
		Short Term (Pilot Project)	Medium Term	Long Term
Size of AERR	87,000 MT	More than 87,000 MT (Target) Member countries decide amount of new AERR as much as they can on voluntary basis.	1,750,000 MT or Less (Target) Member countries increase amount of new AERR as much as they can on voluntary basis.	1,750,000 MT Member countries voluntarily decide reserved amount. If it does not satisfy above amount, allocation system will be taken into consideration.
Method of Rice Reserve	Earmarked	Earmarked system Stockpiled system	Earmarked system Stockpiled system	Earmarked system Stockpiled system
Project	-	Earmarked Rice Release under Demand and Supply Matching scheme in Emergency (Tier 1) Earmarked Rice Release under Aid Base (Tier 2) Stockpiled Release for first aid (Tier 3) Poverty alleviation program	Earmarked Rice Release under Demand and Supply Matching scheme in Emergency (Tier 1) Earmarked Rice Release under Aid Base (Tier 2) Stockpiled Release for first aid (Tier 3) Poverty alleviation program	Earmarking Rice Release under Demand and Supply Matching scheme in Emergency (Tier 1) Earmarked Rice Release for first aid (Tier 2) Stockpiled Release for first aid (Tier 3) Poverty alleviation program
Cost Sharing	Each Country	Each country bears cost of earmarked rice. Certain countries bear cost of the stockpiled rice under voluntary basis.	Each country bears cost of earmarked rice. Certain countries bear cost of the stockpiled rice under voluntary basis.	Mixture between cost sharing under voluntary basis and proper allocation to member countries under certain rules.

The Development Study on East Asia/ASEAN Rice Reserve System

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Abbreviation

ASEAN	Association of Southeast Asian Nations
ASEAN+3	Association of Southeast Asian Nations + 3 Countries (China, Japan and Korea)
AMAF	ASEAN Ministers on Agriculture and Forestry
AFSRB	ASEAN Food Security Reserve Board
AMAF+3	Agriculture and Forestry Ministers
WTO	World Trade Organization
AFTA	ASEAN Free Trade Agreement
TMRR	Technical Meeting on Rice Reserve
SOM-AMAF+3	Senior Official Meeting for ASEAN Ministers on Agriculture and Forestry + 3 Countries (China, Japan and Korea)
AFSR	ASEAN Food Security Reserve
AERR	ASEAN Emergency Rice Reserve
FOB	Free on Board
FAO	Food and Agricultural Organization
WFP	World Food Program
NGO	Non Governmental Organization
NPO	Non Profit Organization
AFSIS	ASEAN Food Security Information System
EAERR	East Asian Emergency Rice Reserve
UMR	Usual Marketing Requirements
IFRC	International Federation of Red Cross
GDP	Gross Domestic Products
MTEAERR	Management Team of East Asian Emergency Rice Reserve
AFSRB+3	ASEAN Food Security Reserve Board + 3 Countries (China, Japan and Korea)
AMAF+3	ASEAN Ministers on Agriculture and Forestry + 3 Countries (China, Japan and Korea)
MOAC	Ministry of Agriculture and Cooperatives, Government of Thailand

CHAPTER 1

INTRODUCTION

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INTRODUCTION

1.1 Background of the Study

Rice is the staple food in East Asia and ASEAN member countries. The rice industry is a major industry with large number of employment. However, only a few amount of rice goes into foreign trade, which is approximately 6% of the total production in foreign trade. Accordingly, the amount of production and stock largely affects the price of rice in the market, resulting in price fluctuation. Recent price decline resulting from increase of rice production negatively affects the lower income and poor families in the rural area. Meanwhile, large natural disasters have often caused the urgent importation and assistance of rice in Asian countries.

Meanwhile, the ASEAN established a rice reserve system in 1979 for food security and, currently, the total reserve is 87,000 tons of rice. However, the system was largely ineffective due to unclear operational roles and limited reserved amount. For example, the rice reserve was not utilized at the time of food shortage in Indonesia in 1998. Accordingly, in the Meeting of the ASEAN Ministers on Agriculture and Forestry (hereinafter referred to as "the AMAF") in 1998, it was determined that the ASEAN rice reserve system needs to be restructured, and early action was required in 1999.

In line with above, the First Meeting of the ASEAN Ministers on Agriculture and Forestry and the Ministers of the People's Republic of China, Japan and the Republic of Korea (hereinafter referred to as "AMAF+3") was held 5th October, 2001 at Medan, Indonesia. In the meeting, the ASEAN Secretariat briefed the Meeting on the recommendations of the Meeting of the SOM-AMAF+3 and the agreements arrived at by the 23rd Meeting of AMAF, held on 3 and 4 October 2001. The terms of reference (TOR) on the Feasibility Study on Food Security and Rice Reserve System in East Asia as the important agenda, was informed as a important agenda. The Meeting endorsed the TOR. Then, Thailand was appointed to coordinate the implementation of the Study. The Meeting also noted that Japan had expressed its intention to support the implementation of the Study as Japan considered that it was quite important to

implement schemes designed to alleviate poverty and to strengthen food security in the Asian region through cooperation with ASEAN +3 countries.

In light of the above, the Royal Thai Government requested the Japanese Government to conduct the Development Study on East Asia/ASEAN Rice Reserve System. It also includes technical transfer and supports of a series of Technical Meetings on Rice Reserve (TMRR) that aim at discussing Asian rice reserve by experts from ASEAN+3 countries under SOM-AMAF+3 Meeting. In response to this request, the Japanese Government dispatched the Japan International Cooperation Agency (JICA) to implement the Development Study on East Asia/ASEAN Rice Reserve System (hereafter referred to as "the Study").

The Study consists of three steps. The First step of the Study was implemented from Jan. 2002 to March 2002 under JICA Project Study Scheme, and this Study is carried out for Step 2 and Step 3 studies under the JICA Development Study Scheme.

The 1st TMRR was held to review the work undertaken by the Japanese and Thai consultants during the First step of the Study in 19 April 2002 in Bangkok. The meeting was attended by delegates from all ASEAN member countries, namely, Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam, plus, the People's Republic of China, the Republic of Korea, and Japan. Representatives from the ASEAN Secretariat and JICA also participated in the first TMRR. The findings from the First step of the Study and some issues for guiding the second and third steps of the Study were discussed in the meeting.

Regarding changes in the international rice market, the discussions were on the following:

- Increase of rice production depended upon the increase of planting area and rice yields. In particular, the increases in China and Vietnam are remarkable, which are achieved through the adoption of high yielding varieties and injection of fertilizers and pesticides.
- Improved accessibility to markets with better transportation and communication. This helps farmers to reduce wastage in the marketing system.
- Increasing consumption with a decreased growth rate. Increases in income and progress of urbanization have affected the reduction of rice consumption per capita.
- Trade liberalization efforts, e.g. WTO and AFTA, and in particular, China's commitment to open up as much as 5.32 million tons under the Tariff Quota in 2004.
- Market evolution (e.g. cross-border investment in rice production and an increase in the number of rice traders in the international market).

Regarding assessment of the rice reserve system in East Asia, the following were pointed out:

- Each country adopts an inward looking reserve policy, especially a self-sufficiency policy. Rice is still considered as a "strategic" commodity.
- This strategy is tantamount to export "uncertainties" to the international rice market, resulting in high fluctuation in the international price.
- Such strategy is not sustainable in the long run, especially, against the opening up of markets.

Based on the discussions above, the following comments were made as guidelines for the Second and Third steps of the Study:

- It was suggested that a joint system to manage stock would benefit all.
- The objective of East Asia Rice Reserve should not only be for emergencies, but also include other functions such as price stabilization.
- It should not be established as a newly created body. ASEAN Food Security and Reserve Board should be used as the core management entity of East Asia Rice Reserve.
- The system should, with its own merits, entice the participation of member countries.
- The system should not affect the autonomy of individual country's maintenance of its own reserve stock. However, the merits of the proposed system should indirectly reduce stock requirements.
- Multilateral cooperation should be explored, or a series of bilateral arrangements could also be an alternative. However, an overall framework should be established.
- Trigger and release mechanisms. An ad-hoc system could be established to address specific issues.
- For size of the stock, an alternative to be considered is an annual pledging system.
- For form of rice kept in reserve, paddy or milled rice, or rice cake, etc. could be considered.
- As coverage, three types of rice such as long grain, glutinous rice, and short grain could be considered. It should also cover products derived from rice such as rice noodles.
- It is necessary to take into account that the price of rice is different among member countries; hence, the cost of maintaining stock will be different (if quantity is used as a basis for the allocation of stock).
- It is necessary to examine the possibility of setting up a fund to finance the cost of collection. A private entity to run the reserve stock, i.e., out-sourcing the service, could be considered.

These results of the 1st TMRR was informed in the Special Senior Officials Meeting of the 23rd Meeting of the ASEAN Ministers on Agriculture and Forestry (Special SOM-23rd AMAF) held on 6 –8 May, 2002 in Surabaya, Indonesia. The Meeting noted that the policy in each country should be improved to be consistent and to complement the existing Regional Food Security System. In this regards, the Meeting endorsed the recommendations from the 1st TMRR, in particular the following points:

- The trigger mechanism of the reserve system; and
- Improvement of existing AFSR mechanism or additional mechanism for AFSR to serve more effectively in reserve function, including price stabilization.

The Study Team is required to take the above comments into consideration for the implementation of the 2nd and 3rd steps of the Study.

1.2 Study Objectives

The ultimate goal of the Study is to restructure the ASEAN Rice Food Security Reserve System to strengthen food security of the eastern Asian countries. In line with this, the study aims at contributing in strengthening the existing ASEAN Food Security and Reserve (AFSR) system by:

- Proposing plan for strengthening AFSR;
- Supporting the Thai Government to smoothly manage a series of TMRRs; and
- Transferring technology regarding the Study to Thai counterparts.

1.3 Scope of the Study

As mentioned in the previous section, the Development Study on East Asia/ASEAN Rice Reserve System was elaborated with three steps in terms of study implementation. The Step 1 study aimed at clarifying current situations and problems regarding the rice reserve system in each country, and was completed in March 2002. The results of the Step 1 Study was presented in the first Technical Meeting on Rice Reserve (hereinafter referred to as “TMRR”) held in 19 April 2002 as mentioned in the previous section.

Based on the outcomes of the Step 1 of the study, this Study (Step 2 and Step 3 of the Study) is required to delineate a new rice reserve system for ASEAN + 3 and its action plan, as shown in Table 1.1. The outcomes of the Study are used for the discussions in the TMRRs and basis of further recommendations/options for submission to the SOM-AMAF+3 and AMAF+3.

Table 1.1 Scope of the Study

	Scope	Period	Milestone
STEP 1	*Analysis on Current Situations* • *Rice security policy* • *Rice demand and supply* • *Rice reserve (advantages and disadvantages, problems, etc.)*	*Jan. 2002 ~ March 2002*	*1st TMRR (19 April 2002)*
STEP 2	Rice Reserve System Planning for ASEAN + 3 countries • Volume of rice reserve • Rice reserve system management • Merits and demerits of the system by each country	April 2002 ~ July 2002	2nd TMRR (21,22 Aug. 2002)
STEP 3	Action Plan • Institutional arrangements • Financial arrangements and cost sharing	Aug. 2002 ~ Oct.2002	3rd TMRR (6 Oct. 2002)

Note: The Study covers only Steps 2 and 3.

The Study Team is also required to support MOAC to convene the 2nd and 3rd TMRRs, to be held in August and October 2002, respectively.

1.4 Study Area

The Study covers ASEAN + 3 (i.e., Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam, China, Japan and Korea). The Study is mainly carried out both in Thailand and Japan; however, the Study Team will make a country consultation study in ASEAN + 3 countries to obtain their opinions by utilizing Thai consultants under sub-contract basis.

CHAPTER 2

CURRENT FOOD SECURITY AND AFSR

CHAPTER 2

CURRENT FOOD SECURITY AND AFSR

2.1 Overall Food Security System in ASEAN + 3

2.1.1 Typical Pattern of Rice Demand-Supply Situation in ASEAN + 3 countries

Food security is the fundamental goal of the ASEAN + 3 emergency rice reserve. At the World Food Summit, the situation of establishment of food security is defined thus: “Food security exists when all people, at all times, have food to meet their dietary requirement”. In addition, food security is generally conceived to have three critical aspects, namely, “Availability: possibility of food supply at the national or regional level,” “Accessibility: possibility of food procurement at the family, colony or individual level” and “Eatability: possibility of food intake for consumers to buzz around and eat at anytime”. Even if only one of three factors is a failure, national/ regional food security can never afford to achieve its purpose.

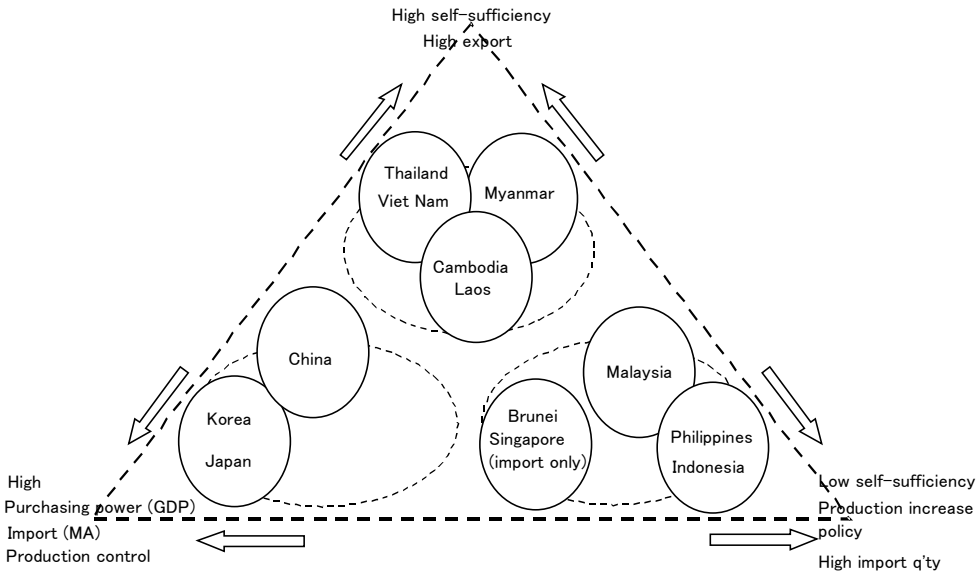


Figure 2.1 Typical Image among ASEAN + 3 Countries regarding Food Security

As for the food security, according to the aforementioned three aspects, such as degree of self-sufficiency as Availability, purchasing power as Accessibility and target size of the reserve as Eat-ability, the ASEAN + 3 countries are typified in the figure 2.1 from food security point of view.

2.1.2 Food Security System among ASEAN + 3 Countries

As for the food security system in the ASEAN + 3 countries at present, there is the national reserve of each country and also AERR based on the AFSR as the regional cooperation for ASEAN of every country. The national reserve is determined, as the food policy of each country, and the criteria for the size of national reserves are different among countries.

The following table shows the size of rice reserve by the ASEAN + 3 countries. The total amount reaches to around 2.1 months of consumption.

Table 2.1 National Rice Reserve by ASEAN + 3 Countries

Country		National Reserve		Converted into Quantity (1,000 Mt)
		Months	Quantity (Mt)	
ASEAN	Brunei	6 months	---	16.3
	Cambodia	---	3,000	3.0
	Indonesia	---	1,000,000	1,000.0
	Laos	3 months	---	10.0
	Malaysia	2.5 months	---	92.0
	Myanmar	3 months	---	64.0
	Philippines	30 days (90 days incl. Private sector)	---	750.0
	Singapore	3-6 months	---	111.0
	Thailand	3 months	---	2,000.0
	Vietnam	---	1,000,000	1,000.0
	Sub-total	---	---	5,046.3
+3	China	3-6 months	---	34,147.0
	Japan	---	1,000,000	1,000.0
	Korea	---	1,150,000	1,150.0
	Sub-total	---	---	36,297.0
Total		---	---	41,343.3

Note: Mt; Metric ton
Source: TMRR 1

The AERR was established in 1979 under the AFSR agreement, currently proceeding with attendance of all 10 ASEAN affiliate countries. The aim is food assistance at emergency and the size of the AERR is 87,000 Mt at present. It is so small, equivalent to merely 0.4 days consumption of the ASEAN countries. The existing AERR, which is just for 0.1% of total demand, is set up by earmarking a part of national reserve. When natural disaster or man-induced disaster strikes, the release of rice as the AERR can be initiated from the national reserve. The ASEAN member country facing a critical food shortage will directly require assistance from other member country (-ies). The settlement of pricing, payment condition and other conditions of the release are subject to bilateral negotiations between the governments concerned. (Refer to Figure 2.2)

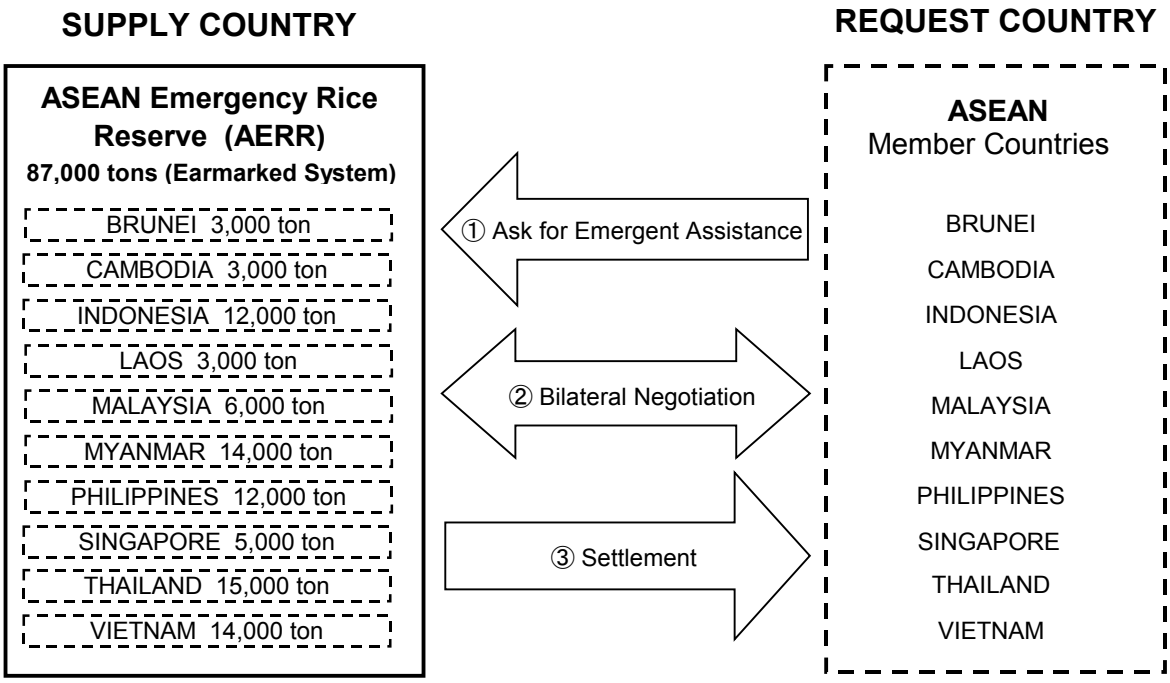


Figure 2.2 Current ASEAN Emergency Reserve (Rice) System

2.1.3 Points of Issues of AERR

As the reserve situation for AERR in each country is carried out under governmental commitment, the actual reserve management (its scale as well) under the present earmarked method is not so clear to accomplish it. AERR, which is established under the Agreement on ASEAN Food Security Reserve in 1979, has never been used since its establishment, even when Indonesia imported big amounts of rice in 1998 - 1999. Therefore, it is important to analyze why current AERR was not utilized for clarifying issues on food reserve.

(1) Scale of Emergency Reserve

At present the scale of the AERR is 87,000 tons. But it is difficult to justify the criterion for how to set it up and its scale as well. It can be said that a small size of reserve is applied in order to stave off financial pressure. By such small size of reserve rice, AERR could not contribute fully when a large-scale food crisis would occur. It is possible to revise amount of AERR in accordance with AFSR agreement; however, there was no revision of amount of AERR in the past. One reason of this is the inadequate statistics on production and consumption (demand) of rice in ASEAN countries.

(2) Settlement

In AFSR agreement, price of releasing reserve rice is negotiated between supplying and recipient countries on the request from recipient country during emergency. As it tends to be settled at international market price, there is no incentive to make use of the reserve for the recipient country. Moreover, it is difficult for the recipient country to utilize the AERR, as it will require raising funds for the settlement.

(3) WTO Consistency

A relation between exporting countries (Thailand, Vietnam etc.) and importing countries (Philippines, Indonesia etc.) in ASEAN is simultaneously a relation between the supplying and recipient countries, although the giving of support in an emergency should not hinder normal trade transaction under WTO rule. This situation is summarized in the problem-tree chart below:

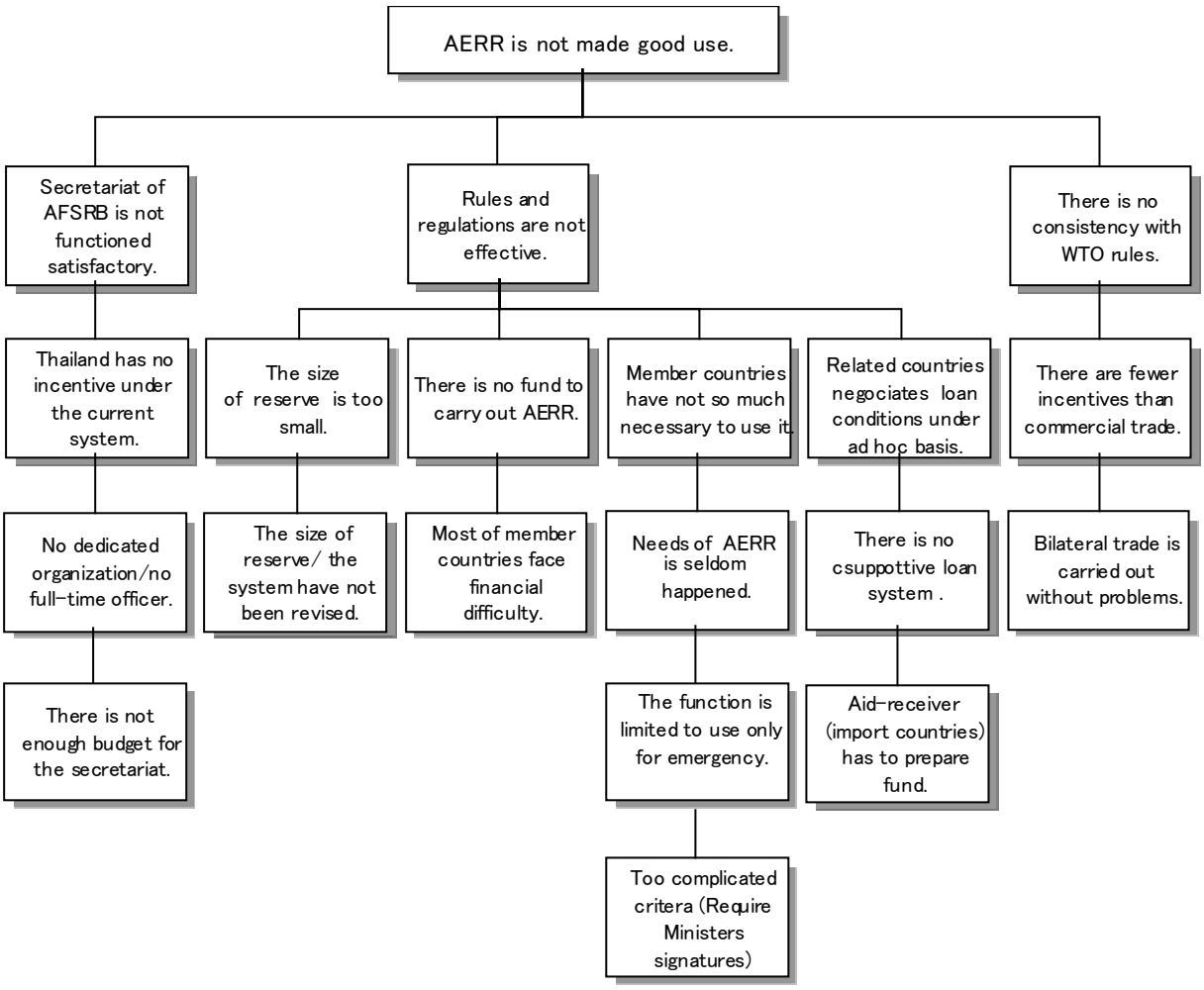


Figure 2.3 Problem Tree of Current AERR

2.2 Rice Production and Consumption in ASEAN + 3

Rice is a very important food commodity; in fact, it is the staple food for most Asian countries. Global production is 410 million tons and ASEAN + 3 countries share 58.5% of it (240 million tons). The table below shows the production transition in ASEAN + 3. The total production has been increasing gradually.

Table 2.2 Rice Production of ASEAN+3

(thousand ton)

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Brunei			0.3	0.1	0.2	
Cambodia		1,779	1,757	1,806	2,079	2,072
Indonesia		31,206	31,118	32,147	32,345	31,661
Laos	851	848	996	1,005	1,262	1,321
Malaysia	1,270	1,380	1,370	1,280	1,470	
Myanmar (paddy)		(17,676)	(16,654)	(17,078)	(20,126)	
Philippines		7,334	7,325	5,560	7,662	8,053
Singapore				0	0	0
Thailand		14,230	15,570	15,180	15,950	16,900
Vietnam			18,940	20,400	20,300	20,900
China	129,650	136,570	140,490	198,710	198,490	187,910
Japan		10,344	10,025	8,960	9,175	9,490
Korea		4,695	5,323	5,450	5,097	5,263

Source: The Project Study on Present Status of Rice Supply-Demand in ASEAN + 3 (China, Japan, and Korea)

On the other hand, global rice consumption is around 400 million tons, with ASEAN + 3 consuming 57.5% (230 million tons) of it. However, there are still surplus productions throughout ASEAN + 3.

The next figure is the movement of balance regarding production-demand for ASEAN + 3, and the selected surplus and deficit countries.

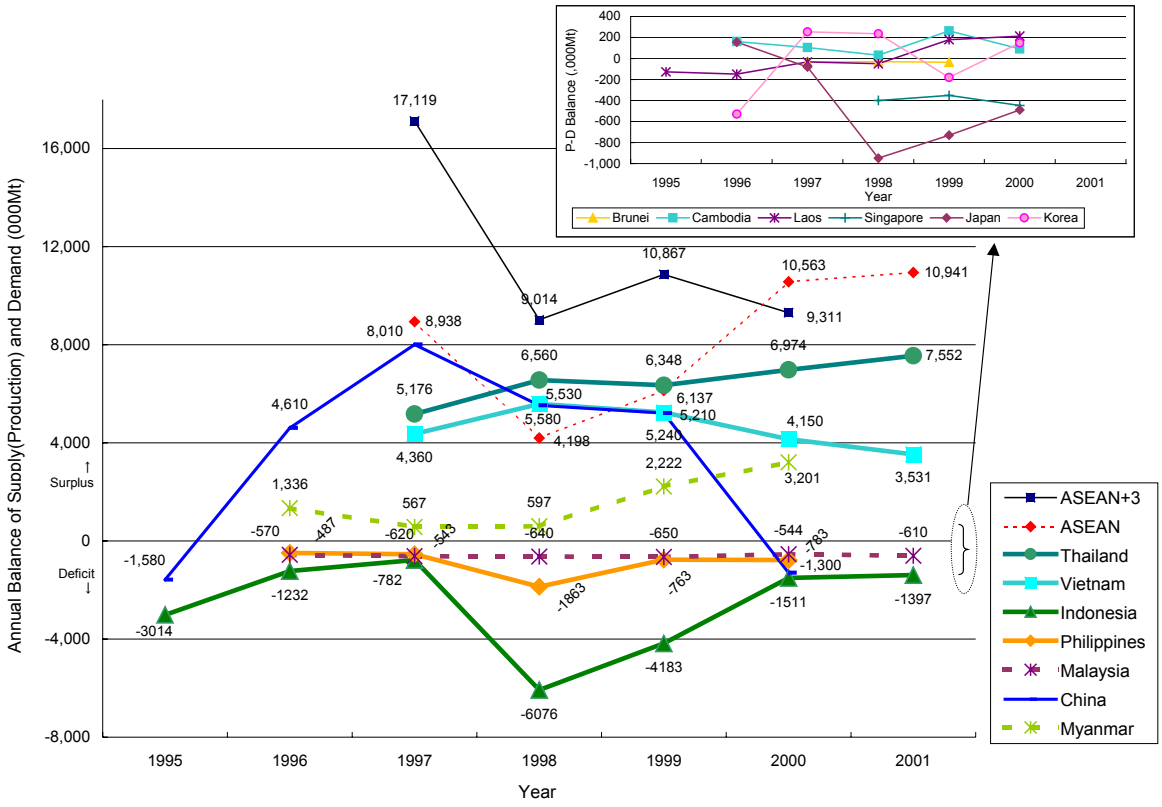


Figure 2.4 Annual Balance between Demand and Production in Selected ASEAN + 3 Countries

The production of the surplus countries, Thailand, Vietnam and others, generally influences the annual balance of production-demand of ASEAN + 3. However, the balance of production-demand in the ASEAN is influenced by disasters, like in 1998 and also 1999, when heavy drought caused an unavoidable decrease of production in the deficit countries, Indonesia, the Philippines and others. It can be said that this largely contributed to the production decrease of the deficit country (-ies), Indonesia, the Philippines and others as a whole.

Figure 2.5 expressed the state of self-sufficiency of every country in place of the production and demand balance. The self-sufficiency rate of Thailand, Vietnam, Myanmar is over 100% every year and even China registers over 100% lately. Brunei, Malaysia, Singapore post a self-sufficiency rate lower than 100% constantly. Although the self-sufficiency rate of Indonesia and the Philippines is not so low, rice insufficiency of those countries is large in absolute quantity, because their populations are large.

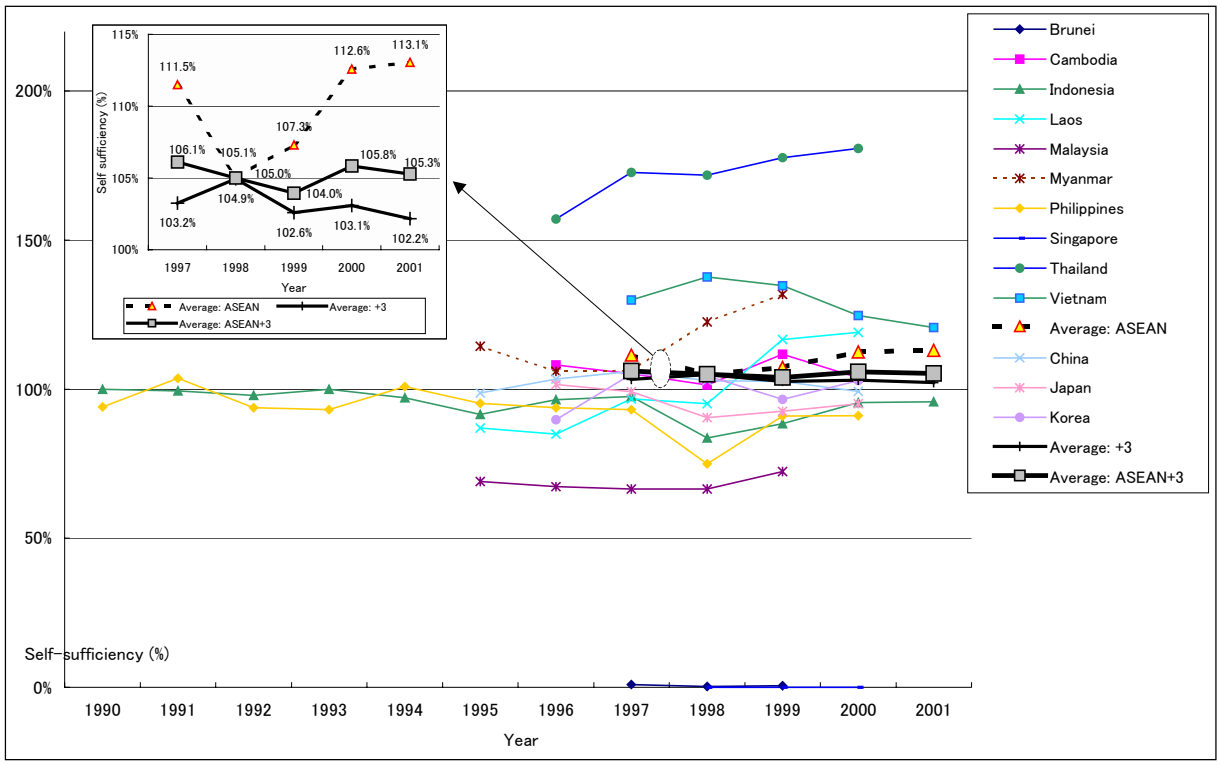


Figure 2.5 Self-sufficiency Tracking of the ASEAN + 3 Countries

2.3 Rice Movement in ASEAN + 3 Countries

As mentioned above, large amounts of rice are consumed in the production countries, so that the trading amount is 6% of total world production of 24 million Mt, which is fairly small, while wheat trading amounts to around 20%.

Annual rice trade of ASEAN + 3 is approximately 14 million Mt exported and approximately 6 million Mt imported totally. Therefore, the balance of approximately 8 million Mt is exported out of the region (ASEAN + 3) to African countries and others. The next figure shows the “Conceptual Rice Trade Flow” with a central focus on the ASEAN + 3 countries.

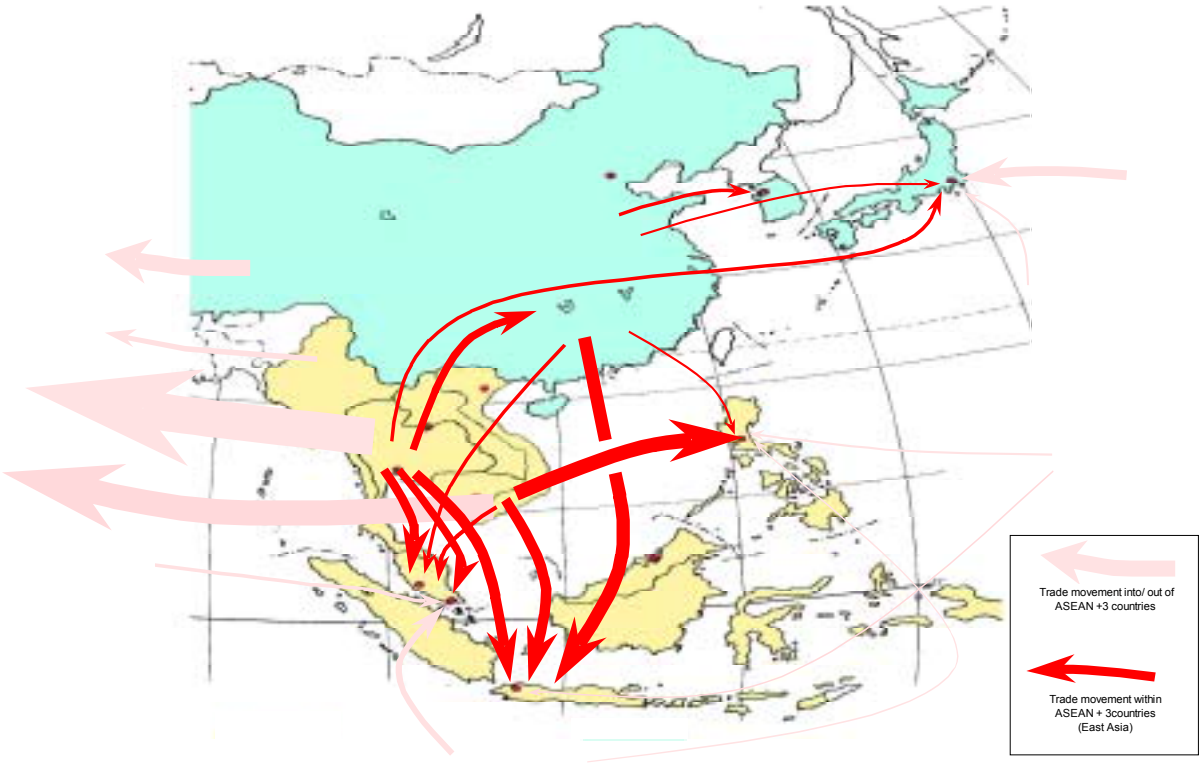


Figure 2.6 Conceptual Flow of Rice Trading in ASEAN + 3 Countries

Regarding rice movement in ASEAN + 3, the exporting countries are Thailand, Vietnam, Myanmar and China while the importing countries are Indonesia, the Philippines and Malaysia. Brunei almost never produces rice, so most are imported. Singapore does not produce rice, so all is imported. Japan and Korea steadily import rice in accordance with the Minimum Access. China joined WTO in 2001 and committed a tariff quota of 3,990 thousand tons in 2002 and 5,320 thousand tons in 2004, respectively. This will have a large influence on world rice trade. In addition, Thailand is exporting higher quality rice and Vietnam is exporting middle or lower ones mainly.

The following “Trade Matrix (year 2000)” shows the movement of rice within ASEAN + 3:

Table 2.3 Trade Matrix, 2000

Export to ⟹ (Mt)

⇧ Import from

Import from	Brunei	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Philippines	Singapore	Thailand	Vietnam	China	Japan	Korea	ASEAN+3	Others	Total
Brunei	–													0	0	0
Cambodia		–			1,200			1,600						2,800	10,000	12,800
Indonesia			–											0	0	0
Laos				–										0	0	0
Malaysia			7,613		–									7,613	0	7,613
Myanmar					2,642	–		2,990						5,632	135,739	141,371
Philippines							–							0	0	0
Singapore	4,000							–						4,000	0	4,000
Thailand	26,000		250,361		330,519		26,644	263,167	–		526,513	128,287		1,551,491	5,018,178	6,569,669
Vietnam		5,000	369,546	1,550	153,004		496,323	53,034		–		15,445	5,500	1,099,402	2,400,366	3,499,768
China			541,900		119,200		64,400				–	70,687	131,000	927,187	2,020,913	2,948,100
Japan			35,020					37				–		35,057	426,943	462,000
Korea			0										–	0	0	0
ASEAN+3	30,000	5,000	1,204,440	1,550	606,565	0	587,367	320,828	0	0	526,513	214,419	136,500	3,633,182	10,012,139	13,645,321
USA		10,000	49,405				59,275					338,454		457,134		457,134
Pakistan			20,139		42,000							189		62,328		62,328
Others	4,000	5,000	23,852	3,450	6,723		252,797	316,201				102,698		714,721		714,721
Total	34,000	20,000	1,297,836	5,000	655,288	0	899,439	637,029	0	0	526,513	655,760	136,500	4,867,365	10,012,139	14,879,504

Source: Data of each interested country, TMMR 1, March 2001

On the other hand, the rice market has a special aspect; emergency imports of large amounts such as Korea in 1980 (2.6 million Mt), Japan in 1993 (2.6 million Mt) and Indonesia in 1997 (5.7 million Mt) would happen often.

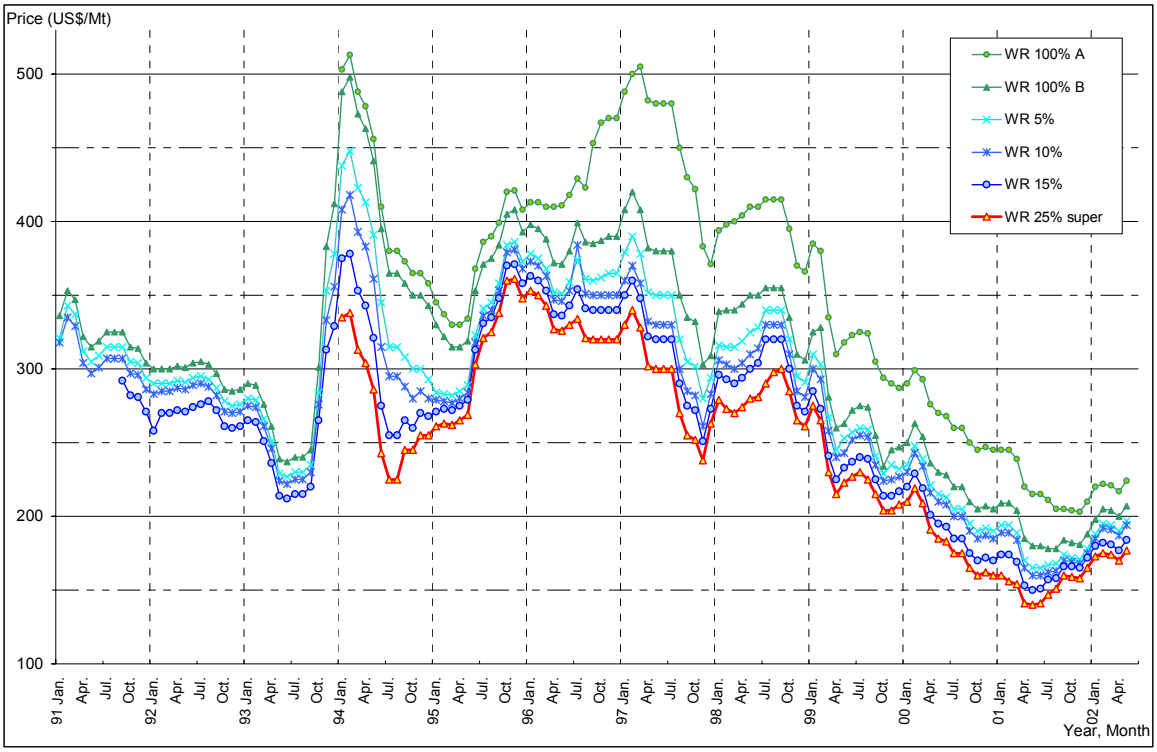
2.4 Rice Price Movement

Rice price movement has a condition, periodic shifts and shifts with trend. From a long-term view, situations of stringency and surplus have happened alternatively and repeatedly. Fluctuation of production owing to the El Nino phenomenon every several years causes a periodic fluctuation of world market. Inflationary price of world rice market occurred in case of large amounts of import caused by abnormal weather condition such as cold weather damage in Japan in 1993 and the El Nino phenomenon in Indonesia in 1997.

In the meantime, besides the periodic fluctuation, rice price in world market is decreasing gradually. In the past three decades its price has gone down one half. It is pointed out as a main factor that improvement in productivity has surpassed the growth of population.

In world rice market, the rice price moves keeping a certain relation to price movement of the other grains. The last few years, the rice price is at a lower level. This situation is accompanied by the flagging of the international grain market. Another factor of large rice price reduction is the relatively smaller trading size compared to the other grains.

Movement of FOB price of Thai rice is shown in the figure below. Fluctuation of price of high quality rice is larger than that of middle or low quality. Moreover, it is accentuated in fragrant rice and glutinous rice because of their limited (small) market.



Source: Rice Committee, Board of Trade of Thailand

Figure 2.7 Movement of FOB Price of Thai Rice

2.5 Past Food Aid

Forty percent (40%) of food aid is implemented by international agencies such as WFP, and the rest is mostly by programs of bilateral agreements, NGOs, PVOs and so forth.

The WFP, in cooperation with FAO, carries out surveys in food deficit countries. Recognizing the needs of multilateral food aid, WFP has appealed for international support. In recent years, WFP has sent out appeals for food aid in cases of Indonesia (Apr., Oct. 1998), North Korea (Nov.1999, July 2000) and East Timor (Apr. 2000). Also, WFP implements food assistance program based on the fund contributed from each country. Under the WFP food assistance program, donor country's decision-making process is important, as to whether or not the program could be worked out. This is one of the options of food aid for an aid-receiving country.

As the global food assistance situation, the following table shows that approximately 90% of food assistance is made with mostly wheat, flour and so forth.

Table 2.4 Rice Aid Deliveries by WFP in ASEAN +3 (in tons)

	1996	1997	1998	1999	2000	2001
Brunei	0	0	0	0	0	0
Cambodia	37,633	37,207	28,056	25,304	51,865	45,271
Indonesia	0	0	92,467	14,353	146,763	10,901
Laos	11,800	27,748	4,310	0	3,730	642
Malaysia	0	0	0	0	0	0
Myanmar	4,190	6,345	2,970	6,398	7,116	22,113
Philippines	0	0	0	0	0	0
Singapore	0	0	0	0	0	0
Thailand	0	2,383	7,906	0	0	0
Vietnam	675	0	630	850	945	0
China	0	0	0	1,034	0	0
Korea	0	0	0	0	0	0
Japan	0	0	0	0	0	0
North Korea	51,067	129,283	92,000	37,498	120,000	508,007
Total	105,365	202,972	228,339	85,437	330,419	586,934

Note: including procurement in the local market
Source: statistics@wfp.org

Japan is the fourth contributing country worldwide for food aid. Japanese food aid, which is different from Europe and the United States, is proceeding with around half of its assistance contributed in kind - rice. It is implemented by a food aid and emergency food assistance program through WFP based on articles of KR.

2.6 Records of Past Disasters

Records of past natural disasters requiring food emergency assistance are shown in the next figure. Among ASEAN + 3 countries, mainly China, the Philippines and Indonesia have suffered from natural disasters (flood, drought/ famines, windstorms, volcanic eruptions) causing reduction of rice production. Among such disasters windstorms and floods have struck so frequently. Drought, which occurred a few times, has significantly influenced food production. Especially, as the rice production area is concentrated in Asia, reduction of rice production by the El Nino phenomenon in this area has been intensive. According to Table 2.5, although frequency depends largely on the location of country, it is a fact that any ASEAN + 3 country is often hit by natural disasters.

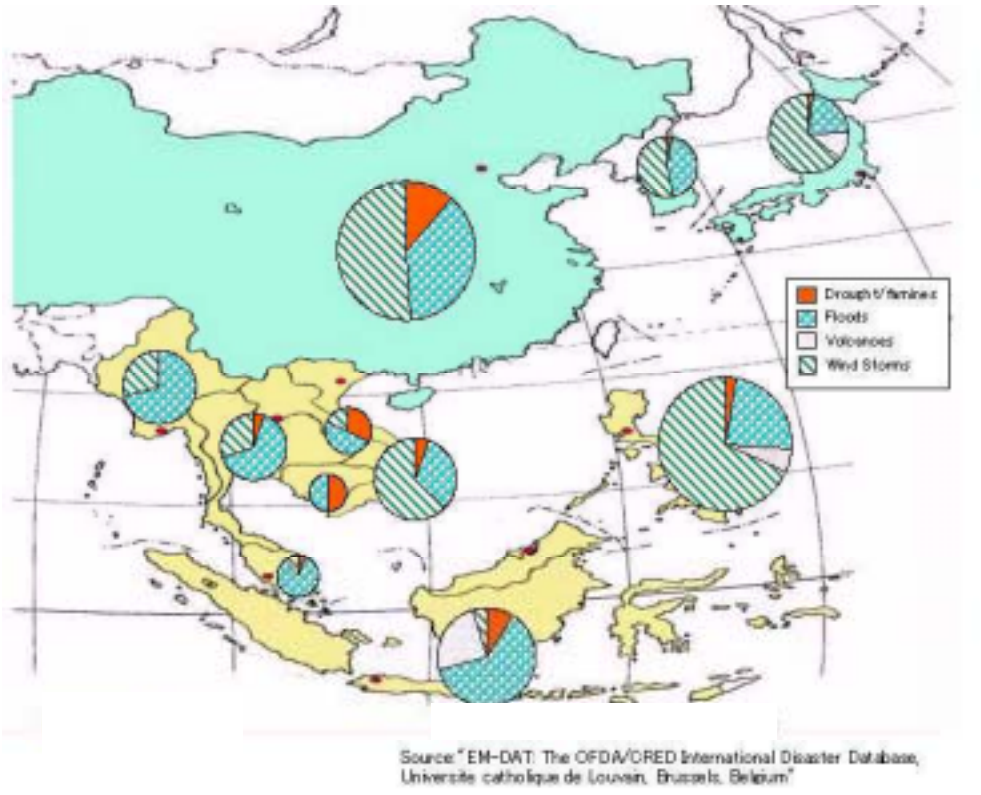


Figure 2.8 Disaster Map (1975 – 2001)

Table 2.5 Natural Disasters, by Country and Type of Phenomena in ASEAN + 3 Countries (1975-2001)

Country	Total Events		Drought/famines			Floods			Wind Storms			Volcanoes		
			Events	Killed	Affected	Events	Killed	Affected	Events	Killed	Affected	Events	Killed	Affected
Cambodia	14	1.6%	7	0	6,200,000	7	1,075	8,016,614	0	0	0	0	0	0
China.R.P	239	27.0%	27	3,400	166,278,000	90	31,615	1,142,824,970	122	9,067	167,957,855	0	0	0
Indonesia	109	12.3%	10	1,589	1,337,220	67	3,217	3,950,527	5	28	13,983	27	659	558,860
Japan	79	8.9%	1	0	0	18	682	683,215	51	1,193	1,285,685	9	47	99,950
Korea	45	5.1%	1	0	0	20	1,503	1,736,950	24	1,628	253,477	0	0	0
Lao	21	2.4%	7	0	4,250,000	10	100	2,444,550	4	56	1,307,312	0	0	0
Malaysia	17	1.9%	1	0	5,000	14	98	162,282	2	270	4,650	0	0	0
Myanmar	14	1.6%	0	0	0	10	244	819,017	4	228	232,970	0	0	0
Philippines	211	23.8%	6	8	4,185,050	49	1,729	6,226,304	144	19,868	89,114,126	12	719	1,427,334
Singapore	0	0.0%	0	0	0	0	0	0	0	0	0	0	0	0
Thailand	56	6.3%	3	0	8,500,000	36	2,206	22,266,557	17	685	3,126,355	0	0	0
Viet Nam	81	9.1%	4	0	5,700,000	26	3,309	24,930,249	51	9,193	36,253,567	0	0	0
Total	886	100.0%	67	4,997	196,455,270	347	45,778	1,214,061,235	424	42,216	299,549,980	48	1,425	2,086,144

Source: same as Figure 2.8

Table 2.6 Natural Disasters, by Year and Type of Phenomena in ASEAN + 3 Countries (1975-2001)

Year	Total	Drought/ Famine	Flood	Volcanic eruption	Windstorm
2001	66	9	35	2	20
2000	61	3	24	3	31
1999	41	5	23	0	13
1998	35	6	9	1	19
1997	25	3	9	1	12
1996	31	1	16	0	14
1995	38	3	19	0	16
1994	40	2	14	3	21
1993	48	3	16	4	25
1992	41	4	14	2	21
1991	49	5	16	5	23
1990	33	0	10	1	22
1989	28	0	6	1	21
1988	31	2	14	3	12
1987	36	5	13	1	17
1986	32	2	11	1	18
1985	23	1	10	1	11
1984	24	1	10	4	9
1983	28	2	8	4	14
1982	35	2	13	2	18
1981	32	1	13	1	17
1980	24	1	9	1	13
1979	16	1	6	2	7
1978	29	3	11	2	13
1977	23	2	11	1	9
1976	12	0	5	2	5
1975	5	0	2	0	3
Total	886	67	347	48	424

Source: same as Figure 2.8

CHAPTER 3

PRINCIPLE OF EAST ASIAN RICE RESERVE SYSTEM

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PRINCIPLE OF EAST ASIAN RICE RESERVE SYSTEM

3.1 Introduction

General Provisions of the current AFSR Agreement stipulate a wide scope such as: (1) the strengthening of the food production; (2) the prevention of harvest losses; (3) the establishment of a food information and early warning system; (4) the adoption of effective national stock holding policies and improved arrangements for meeting requirements of emergency food supplies; (5) the promotion of stability of food prices; (6) the adoption of policies and programs for improving consumption and nutrition, particularly of the vulnerable groups; (7) the promotion of labor opportunities especially in the rural areas and increasing the income particularly those of small farmers; and other measures.

Although the AERR under the AFSR aims to respond to the requirements of the emergency food assistance, it has never been made use of since its establishment in 1979. East Asian Emergency Rice Reserve System (EAERR) should be established on the premise of collaboration with the +3 countries, referring to the problems of the current AERR analyzed in Chapter 2, of which necessities and rationales are stated as follows:

- The current AERR sets up the reserve scale of 87,000 Mt. The quantitative scale is expanded in order to match the requirement in transient large-scale disasters.
- As the current AERR has never been used, it is necessary to change it into an attractive system to use. For instance, certain advantage such as cost saving can be achieved against user, and prompt response to required assistance can be expected.
- There is a need to improve the existing system/ mechanism of AERR, which has many problems. For instance, the criteria from requesting to releasing are not clear. Basic conditions (price, interests, repayment term) for releasing are charged to bilateral discussion and this takes a long time.
- The current AERR limits use in an emergency. Multifunctional utilization is expected to be more

flexible for its operation. For instance, materializing contribution in poverty alleviation.

3.2 Objectives and Functions of EAERR

Overall objective of East Asian Emergency Rice Reserve (EAERR) is to secure food security in an emergency caused by temporary and large-scale calamity. For such occasions, EAERR is justified as a regional cooperation standing on humanitarian grounds as well as on business terms.

EAERR is a mutual assistance system to supply necessary amounts of rice flexibly and effectively to rice-needy countries. It applies grant basis and onerous terms. It is essential to set up EAERR mechanism to be flexible to respond to various requirements from a recipient country during the emergency.

Target countries are ASEAN members, China, Korea and Japan. Multifunction having flexibility is important for commitment among ASEAN member countries + 3 (China, Korea and Japan), so as to enhance its possibility.

Major function of EAERR is food aid for assistance in a disaster; however, other functions are additionally combined to effectively operate and maintain the EAERR system. Being multifunctional will make EAERR more sustainable and flexible. In this sense, EAERR will include a function of food assistance for the poverty (undernourished) alleviation.

An expected by-product of EAERR is price stability.

3.3 Principles of East Asian Emergency Rice Reserve System (EAERR)

3.3.1 EAERR in Rice Market and Distribution Context

(1) Types of Reserve Rice

In ASEAN member countries, Indica rice is overwhelmingly consumed and Japonica rice is consumed in Northern China, Korea and Japan. Indica type is commonly long grain, and Japonica type, short grain. Glutinous rice is commonly consumed in Laos and Northeastern Thailand, and in other countries it is consumed as processed food.

Even for emergency rice reserve, this preference classified mainly into Indica rice, Japonica rice and glutinous rice needs to be considered by taste/ liking. Though it is quite possible that two types of rice

will be chosen as emergency rice in future, in order to facilitate rice reserve system, the rice in reserve of countries for the moment is applied as rice reserve. As rice reserved in forms of cargo rice or paddy needs to be whitened (milled) before releasing, such process is likely to make emergency assistance difficult. General rice quality for assistance is white rice 20-25%, in bags of 50kg.

(2) Storage for Reserve

Rice in storage belongs to the category of rice reserve. It is deteriorated and sometimes harmed by insects. Tropical climate with high temperature humidity negatively affects environment of rice storage; however, long-term storage has been traditionally carried out in the ASEAN countries. Rice is commonly stored at room temperature and the warehouse is furnished with ventilation/ opening system. It is advantageous for preventing from deterioration caused by high temperature and high humidity, but is disadvantageous for insects or birds, resulted in generating certain losses. In Japan, low temperature facility is commonly used for rice storage, but it is costly in O&M.

Governmental national rice reserve is usually stored in governmental warehouses (and/or warehouses rented from private sector). In recent years, stored rice controlled by government has been decreasing, being contracted out to the private sector. Consequently, most of ASEAN countries turn to have large remaining capacity for rice storage (in other words, leaving much room for storage).

As paddy is cultivated at least once a year, storage period is at most one year. Longer period of storage than that will invite deterioration in quality. Therefore, stored rice should be renewed each year. In order to carry out this stock control without fail, it is important to keep accounting adequately. Rice is generally stored in form of bulk or bagged paddy and bagged white rice.

It is of necessity to fix a certain level of quality standard for reserved rice as well as types. Since EAERR is multilaterally implemented, it is easier to comply with rice standards of each country.

3.3.2 EAERR in Relation to National Reserve

Regarding relations between national reserve and AERR, the AFSR Agreement on the ASEAN Food Security Reserve IV 2 prescribes that each ASEAN member country shall earmark within or over and above its national reserve, a certain quantity of rice. In practice, national reserve and AERR are usually managed by the same agency, and AERR is set up within national reserve in order to minimize the financial burden. It is practical that EAERR is set up within national reserve, the same as AERR.

EAERR is a supplemental system to national reserve and usual trade in order to procure necessary rice in emergency case.

3.3.3 AERR in WTO, FAO Context

In WTO negotiations, the reserve for food security is an accepted "Green Box (permitted domestic payment)," a case of direct payment satisfying a rule of domestic subsidiary payment. If EAERR, as a regional cooperation, would not be implemented for emergency food assistance, it may conflict with WTO rules because there is possibility it could impact adversely to normal trade.

On the other hand, food aid mechanism under EAERR needs to be consistent with FAO's Principles of Surplus Disposal, so as to be integrated with other aid programs of international agencies such as WFP/FAO. Moreover, the largest subject of the FAO Principles of Surplus Disposal is the prevention of a common commercial trade from becoming ostracized by concessional terms.

3.3.4 Buying and Cost Sharing Principle

(1) Procurement of reserve rice

Current AERR allocates rice reserve to all the member countries, even a small amount. The system is mutual cooperation scheme through procuring rice reserve from all member countries. Since ASEAN + 3 countries vary widely in terms of financial capability and rice production, which are typified as surplus countries, deficit countries and noncommittal 3rd countries in Chapter 2, some countries might be unable to accommodate the allocation. Meanwhile, since there are surplus as a total in supply and demand balance of rice in ASEAN + 3 countries, rice reserve can be procured within ASEAN + 3. It is not basically necessary to procure from other regions.

Procurement of reserve rice is made based on rules and regulations of each country. However, in a practical stage of stockpiling reserve rice, a bid tender will be required that will result in competition among the surplus countries to promote their own rice. In this respect, procurement method needs to be carefully examined.

(2) Cost Sharing Principle

There are many concepts for cost sharing such as:

- A beneficiary of rice reserve bears cost (benefit assessment)
- A donor bears cost, from standpoint of regional cooperation (aid); and
- Each country earmarks a quantity same as the current AERR, so that cost does not become obvious as rice is released

Since stockpiling system generates cost such as purchase price and warehouse fee, it is obvious that somebody is obliged to bear the cost. Accordingly, the system that ASEAN + 3 shares cost appropriately is indispensable for EAERR. It also supports getting a consensus among ASEAN + 3.

(3) Allocation of reserve quantity

ASEAN + 3 will mutually discuss to determine an appropriate allocation of rice reserve based on the rules above mentioned. The country allocated rice reserve bears the cost.

3.4 Relation between AFSR and AFSIS (ASEAN Food Security Information System)

AFSRB should be responsible for adequately collecting and analyzing data regarding production, foreign trade, food supply and demand balance, etc., as the secretariat of the AFSR. From EAERR point of view, it is required to improve rice demand-supply balance sheet, which provides indispensable information, taking into account the necessity and rationale of use of emergency rice in response to request for emergency rice.

In order to formulate rice demand and supply balance sheet, it is necessary to improve accuracy of data in the ASEAN + 3 countries because some countries have less accurate data and some countries use different data formats. The necessary data for better rice balance sheet are production amount, seeds sowing amount, loss amount after harvest, yield of milling, consumption amount (for eating, processing and feeding), stock at beginning and end of term etc. It is noted that border trade out of formal record seems not to be negligible; how to clarify the border trade amount more accurately should be examined.

In this sense, information system on rice is an important element to effectively and adequately manage the EAERR system. AFSIS (ASEAN Food Security Information System), which aims at improving agricultural statistical information, will start from January 2003 covering ASEAN + 3 countries. It is of important to utilize this AFSIS for providing EAERR necessary information.

3.5 Future Prospect of the New AERR System

As the final goal of EAERR it is intended to increase the function and expand the system across the world in future. It is a realization of multifunctional system that is stated in the “General Provisions” of the original AFSR Agreement. Figure 3.1 shows future prospect of AERR improvement. The delineation to be made hereinafter is concentrated in Chapters 4, 5 and 6.

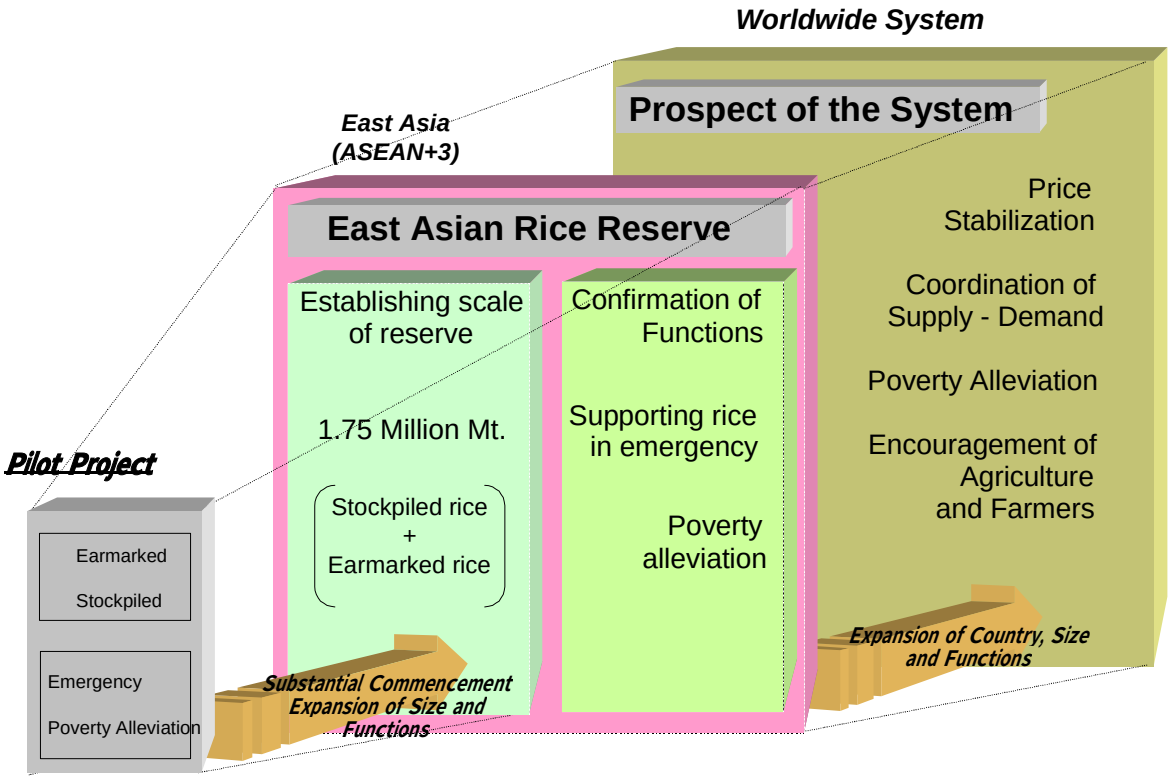

Figure 3.1 Prospect of EAERR

CHAPTER 4

VOLUME OF EAST ASIAN RICE RESERVE SYSTEM

CHAPTER 4

VOLUME OF EAST ASIAN RICE RESERVE SYSTEM

4.1 Determination of Size of Rice Reserve

4.1.1 Setup Conditions

- The existing AERR is targeted to cover ASEAN member countries. Participation of the + 3 countries (China, Korea and Japan) will make it possible to scale up the current amount of reserve.
- Target scale of EAERR will be calculated based on the past experience of food shortage by natural disaster in the ASEAN+3. Any one of the ASEAN+3 country is at risk of being hit by a natural disaster even though the level of frequency differs among them.
- Reserve rice is for emergency use. Current AFSR, Agreement (IV 3.), defines the case of emergency as "suffered extreme and unexpected natural or man-induced calamity, is unable to cope with such state or condition through its national reserve and is unable to procure the needed supply through normal trade."
- In order to achieve an agreement, it is important that member countries not shoulder a bigger financial burden. As a rule, the volume of the reserve of EAERR shall not exceed that of the national reserve.

4.1.2 Methodologies and Results of Calculation

Following are some of the methods studied in accordance with the conditions mentioned above.

(1) UMR: Usual Marketing Requirement 1.75 million Mt

1) Methodology

- Necessary quantity as reserve for emergency is applied to determine the scale to be set, which

covers production reduction by disaster.

- The usual shortage quantity to total demand is calculated from the balance amount of production and demand on an annual average, which is the UMR: Usual Marketing Requirement (assuming usual commercial trade quantity in the year following).
- Next, the necessary quantity (an absolute deficit quantity) is calculated from the balance of amount of production and demand on a disaster year.
- Difference between the necessary quantity in an emergency and the necessary quantity for UMR is the emergency requirement. According to the Articles of the AERR under AFSR agreement, the quantity of national reserve should be deducted from it, in order to find the required quantity for the new AERR.

This calculation method based on production, demand and national reserve does not hinder usual commercial trade transactions. For the calculation, data after the year 1995 is used with considerations of accuracy of data, change of rice demand and supply balance due to change of population and food habit.

2) Result

This method relies upon the production decreases due to a disaster. Therefore, countries that have no (or little) rice production, such as Singapore and Brunei, and countries that have surplus even in times of decreasing rice production due to disasters, such as Thailand, Vietnam and Myanmar, are out of the calculation. Utilizing this method and considering data since 1995, a sample calculation was done with the natural disaster in 1998, resulting in the conclusion that only Indonesia, the Philippines and Malaysia seem to need reserve rice. But if a longer period of data is used, say even way back in the ‘80s, other food shortage cases like in Korea (1980) and Japan (1993) might be taken into consideration in the calculation. It can be accordingly said that this reserve scale responds to a requirement covering all ASEAN + 3 countries in emergency.

Table 4.1 Required Scale of the New AERR (consideration of UMR)

(,000 Mt)

Country	Average of Production	Average of Demand	Usual Marketing Requirement	Balance of supply/demand at peak	Required Quantity for Emergency	National Reserve	Required for New AERR
	a	b	c b - a	d b - a at peak	e d - c	f	g e - f (Roundup and >0)
Brunei	0.2 for 3 years 1997 to 1999	33.3 for 3 years 1997 to 1999	33.1	33.1 No deficit peak	0.0	16.3	**0.0**
Cambodia	2,288.8 for 5 years 1996 to 2000	2,159.0 for 5 years 1996 to 2000	-129.8 Surplus	-129.8 No deficit peak	0.0	3.0	**0.0**
Indonesia	32,003.9 for 7 years, 1995 to 2001	34,603.1 for 7 years 1995 to 2001	2,599.3	5,129.5 for 1998/1999	2,530.2	1,000.0	**1,530.2**
Laos	1,047.2 for 6 years 1995 to 2000	1,042.2 for 6 years 1995 to 2000	-5.0 Surplus	-5.0 No deficit peak	0.0	10.0	**0.0**
Malaysia	1,329.3 for 6 years 1996 to 2001	1,935.0 for 6 years 1996 to 2001	605.7	645.0 for 1998/1999	39.3	92.0	**0.0**
Myanmar	11,233.2 for 5 years 1996 to 2000	9,648.6 for 5 years 1996 to 2000	-1,584.6 Surplus	-1,584.6 No deficit peak	0.0	64.0	**0.0**
Philippines	7,186.8 for 5 years 1996 to 2000	8,074.6 for 5 years 1996 to 2000	887.8	1,863.0 for 1998	975.2	750.0	**225.2**
Singapore	0.0 for 3 years 1998 to 2000	399.7 for 3 years 1998 to 2000	399.7	399.7 No deficit peak	0.0	111.0	**0.0**
Thailand	15,566.0 for 5 years 1996 to 2000	9,044.0 for 5 years 1996 to 2000	-6,522.0 Surplus	-6,522.0 No deficit peak	0.0	2,000.0	**0.0**
Vietnam	20,135.0 for 5 years 1996 to 2000	15,302.5 for 5 years 1996 to 2000	-4,832.5 Surplus	-4,832.5 No deficit peak	0.0	1,000.0	**0.0**
China	172,434.0 for 6 years 1995 to 2000	168,022.0 for 6 years 1995 to 2000	-4,412.0 Surplus	-4,412.0 No deficit peak	0.0	34,147.0	**0.0**
Japan	9,598.8 for 5 years 1996 to 2000	10,017.6 for 5 years 1996 to 2000	418.8	418.8 No deficit peak	0.0	1,000.0	**0.0**
Korea	5,165.6 for 5 years 1996 to 2000	5,180.6 for 5 years 1996 to 2000	15.0	15.0 No deficit peak	0.0	1,150.0	**0.0**
Total	277,988.8	265,462.2	-12,526.5	-8,981.8	**3,544.7**		***1,755.4***

Target Scale for New AERR

1.75 mil. Mt

Calculation

UMR is calculated by balance of production and demand (use) in order to find proper usual requirement for import in the deficit country
UMR is calculated by average of balance between absolute value of demand and production duyring latest 5 to 7 years with considering national reserve which is possible to use in emergency.
∴ New AERR = Required quantity at peak (emergency; 1998/1999 or 1998) - UMR - National reserve

(2) Difference in Quantity between Usual Import and Imported in An Emergency, 1.91 million Mt

1) Methodology

- Calculation for the reserve scale is based on the past annual import records [maximum imported record - average of all imported record]: the maximum quantity is recorded in the year of disaster, the average quantity is in the usual import and the minimum is in the good harvest.

- Summing up the above, the scale of the emergency rice reserve is determined from the difference in quantity between “usually imported” and “imported in an emergency” based on records of import countries. At that time, in accordance with the articles of the AERR, the quantity of emergency reserve would be released from that of the national reserve at first.

2) Result

Necessary amount of rice reserve is calculated at 1.91 million Mt under this method. It is generally understood that normal trade quantity will increase in conjunction with the importing quantity in emergency. Therefore, it is pointed out that there is a problem with this method, arising from the difficulty to distinguish normal trade from food aid due to lack of a more detailed, official data.

(3) Standard Reserving Volume, 2.50 - 4.19 million Mt

1) Methodology

For this method FAO’s criteria for calculation is applied. In accordance with the Stocks-to-Utilization Ratio by FAO, a ratio of 3 - 5% (reserve elements to cover most possible shortfalls in 95 - 100 of the cases) is employed here.

2) Result

Necessary amount of rice reserve is calculated at 2.5 - 419 million Mt under this method. This method makes it easy to obtain an approximate quantity for reserve. However, as it is standard with regard to all kinds of cereals in the world, and it does not focus on Asia or on rice alone, the result will not be highly reliable. It is widely understood that preferable stocks-to-utilization ratio is 20% (2.5 months of food), which is a combination of working stock and reserve elements.

Table 4.2 FAO’s Cereal Stocks-to-Utilization Ratio

	Old Study (1974)	Recent Study (1997)
Working Stocks	12 %	12 %
Reverse Elements to cover most possible shortfalls in 95-100 of the cases	7 – 8 %	3- 5 %

Note: Review of FAO’s Global Stocks-to-Utilization Ratio, 27th Session of Intergovernmental Group on Grains (Feb 1997), was restudied in the18th Session (1974)
Source : FAO Grains-Cereal Stocks Review, Feb. 1997

(4) Records of Past Disasters, 2.50 million Mt

1) Methodology

This is the most direct method in means of emergency food assistance for disasters, because the persons who are suffering from a disaster are targets.

- Estimate the scale to be set [Affected people x Distribution quantity per capita x Period (Frequency) of distribution], based on data of disasters of IFRC (International Federation of the Red Cross).
- Considering disaster types (drought, flood, typhoon etc.) separately, a large-scale disaster of once every 10 years is the assumption.

2) Result

Necessary amount of rice reserve is calculated at 250 million Mt under this method. The records of disasters pertain to disaster types, number of disasters and number of affected people. As the distribution quantity and period of distribution are assumed from those records, the result could not have high reliability.

(5) Bad Harvest in the Exporting Countries, 20,000 Mt

1) Methodology

It is assumed that 30% of rice production decreases in the exporting country would occur and the importing country could not achieve usual import amounts. (Both the exporting and importing countries are assumed not to simultaneously have a bad harvest once every 10 years.)

2) Result

Necessary amount of rice reserve is calculated at only 2 million Mt under this method. It implies that even if the export country has its production reduced by 30%, it is still possible to work out the usual export (or import of deficit countries) with the one-year period of reduction.

(6) Conclusion

The above-described studies for EAERR are orderly laid out in Table 4.3. In conclusion, 1.75 million tons led by the method based on UMR seems reasonable and proper as the reserve scale, because it is assumed as the worst case in ASEAN + 3, i.e., the production decreases by a disaster in the importing

country (-ies), It also pays careful attention on usual commercial trade in the process of calculation.

Table 4.3 The Comparative Table of Methods for Scale Setting of EAERR

Method	Usual necessary trade (import) quantity; UMR: Usual Marketing Requirement	Difference in quantity between "usually imported" and "imported in an emergency"	Stocks-to-Utilization (Normal reserve quantity)	Disaster scale	Bad harvest in the exporting (surplus) countries
Approach and Calculation	① Setting of the relevant quantity in emergency by a usual commerce based on average production-demand (P-D) balance ② P-D balance at peak (emergency) – UMR (average quantity of P-D balance) – National reserve = Set scale	① Calculation based on past annual import record in order to analyze difference in an emergency. ② Imported quantity in an emergency – Average imported quantity – National reserve = Set scale, based on annual import record	① Stocks-to-Utilization Ratio: 3 to 5% (Reserve elements to cover most possible shortfalls in 95-100 of the cases). ② Standard storing quantity (average demand quantity × 3 to 5%) ― National reserve = Set scale	① A large-scale disaster once every 10 years is the assumption. ② (Affected people x Distribution quantity per capita x Period (Frequency) of distribution) ― National reserve = Set scale	① The viewpoint that the deficit country would not import in the case of 30% decrease in production in the exporting countries. ② Usual importing quantity of the deficit countries ― Possible exporting quantity in a natural disaster (the P-D balance = Production in a natural disaster ― Demand) ― National reserve of all the countries = Set scale
Scale Setting (,000)	1,750Mt	1,910Mt	2,500 to 4,190Mt	2,500Mt	20Mt
Advantage and/ or Feature	That does not hinder a usual commercial- based transaction, calculated through production and demand.	That can calculate directly from import record.	That is easy to obtain a rough estimated quantity for reserve, as acknowledged in FAO.	That focuses on affected people by a large-scale disaster as a direct object.	That can review the influence of the import country, in case of production decreases by about 30% in the exporting y. Other methods focus on the time of disaster in the import country.
Disadvantage		That is difficult to classify (annual) usual import as food aid in an emergency (there is the indication of importing quantity that negatively influences the usual commercial transaction, pointed out allegedly).	That is the standard with regard to all the kinds of grain (cereal) in the world and is not specific to Asia and also to rice.	That the suffering is widespread and varied and the calculation of the quantity of the support food to affected people (drought, flood, typhoon etc.) is difficult and lacks accuracy.	That the importing and the exporting countries would not simultaneously have a bad harvest (with the level assumed at once every 10 years).
Use Data	Production, demand quantity	Importation achievement	FAO Grains-Cereal Stocks Review, Feb. 1997	IFRC (International Federation of the Red Cross) disaster data	Production and also import and export achievement

4.2 Reserving Method

4.2.1 Reserving Method

There are two methods of rice reserve: earmarking system and stockpiling system. It is understood from the actual situation of current AERR that the earmarking system is the method to designate a part of national reserve rice, but there is no actual stock available under this system. While stockpiling system is the method to physically pile up rice for storage in warehouse. Also, earmarking system is understood actually to "committing a part of commercial rice stock" and it has still lots of valuation among countries. In another aspect, the ownership of reserved rice is not transferred to the authority concerned under the

earmarking method, while ownership of the reserved rice is transferred to the authority concerned under the stockpiling system.

4.2.2 Main Differences between Earmarking System and Stockpiling System

The following table shows main differences between Earmarking System and Stockpiling System, comparing their advantages and disadvantages. In conclusion, it is easy to adopt the earmarking system but its reliability for execution is not so high due to lack of assurance to accomplish first aid for the emergency requirement. On the other hand, stockpiling system scores highly on reliability but it generates procurement and O&M costs.

Table 4.4 Main Differences between Earmarking System and Stockpiling System

	Earmarking System	Stockpiling System
Advantage	• Each country may bear the cost because it is negligible. • Easy to earmark.	• Price becomes lower than international price because of the earlier procurement before emergency needs. • Realize prompt response to first aid for the emergency requirement because rice is in stock and readily available.
Disadvantage	• Limited cost saving. • Difficult to respond to first aid for the emergency requirement.	• Require a large amount of cost for procurement and storage. • Definitely need to exchange with new rice after a long period of stock.

Note: Earmark system means to allot a part of normal rice stock.
Stockpiling system means to pile up rice for storing physically in the warehouse.

4.3 Allocation of Rice Reserve among ASEAN + 3 Countries

Prior to allocating the rice reserve to ASEAN + 3 countries, a voluntary system should be promoted at first as much as possible. ASEAN+3 will make certain contributions to set up the EAERR; some countries may contribute to take on the financial burden. Cost sharing method and rules should be carefully studied because it will be a very sensitive issue to achieve agreement among ASEAN+3.

In order to reach the target scale of EAERR, adequate duration and a phase-by-phase approach are needed, so as to mitigate financial burden of member countries. Especially, it is necessary to build an awareness that the burden largely depends on the amount of stockpiling reserve, as mentioned before. These conditions are summarized as follows:

Table 4.5 Target of EAERR by Term

		Short Term	Medium Term (3 ～10 years)	Long Term (10 years or more)
Target (Mt)		more than 87,000	Target to1.75mil.	1,750,000
Method of reserve	Voluntary system	Earmark Stockpiling	Earmark Stockpiling	Stockpiling
	Allocation system	-	Earmark	Earmark Stockpiling

As shown in the above table, it is proposed not to indicate any target volume of rice reserve to facilitate participation of the member countries in the short term. The practice in short term aims mainly at determining and elaborating the EAERR system; accordingly, it is also proposed to introduce stockpiling rice reserve experimentally. Based on the results of the practice in short term, rice reserve will be expanded and allocation system will be partially introduced for member countries in medium term. The stockpiling rice will be done under voluntary basis, too. Allocation system for the stockpiling rice reserve will be considered in long term. Although the countries of ASEAN+3 vary in terms of rice demand-supply balance, frequency of natural disaster and financial capability, at least any one country should have an allocation and this goes for both surplus and deficit countries. In practice, higher priority is given to voluntary method, then to allocation method. It is very important that enough discussions are held on allocation of cost among ASEAN + 3 countries before the introduction from the following point of views:

- The financially capable member country (per capita GDP over US$2,000) and member country with large rice production and higher self-sufficiency (over 120% self-sufficient) are expected to provide reserve rice on voluntary basis.
- The deficit countries need reserve rice as emergency support at disaster. These countries should contribute to the EAERR, too. After fixing the total volume of the reserve rice under voluntary basis, the deficit countries are required to fill the remaining portion.

Table 4.6 shows a concept of the allocation/voluntary system as applied to the ASEAN+3.

Table 4.6 Expected Situation of Each Country

	Choice →	(a)	(b)		(c)
Country ↓	Targeted Total Volume of Reserve	Participating Countries in Voluntary System	Allocation by means of Demand-Supply Difference		Allocation to Only Surplus Countries
			Deficit Countries	Surplus Countries	
Brunei		○	△		
Cambodia				(□)	(□)
Indonesia			△		
Laos				(□)	(□)
Malaysia		○	△		
Myanmar		◎		□	□
Philippines			△		
Singapore		○	△		
Thailand		○◎		□	□
Vietnam		◎		□	□
China				□	□
Japan		○		□	□
Korea		○		□	□
	1,750,000 tons				

○: Country with per capita GDP over $2,000 in 2000
◎: Country with self-sufficiency over 120% in 2000
△, □,(□) will be filled with the figures after calculation.

4.4 Location of Rice Reserve

Rice reserve will be separately stocked in each country to reduce cost of storage in the short term of pilot project period. While, in medium and long terms, it is again necessary to have discussions among the ASEAN + 3 countries based on the results of the pilot project, from the points shown in Figure 4.1.

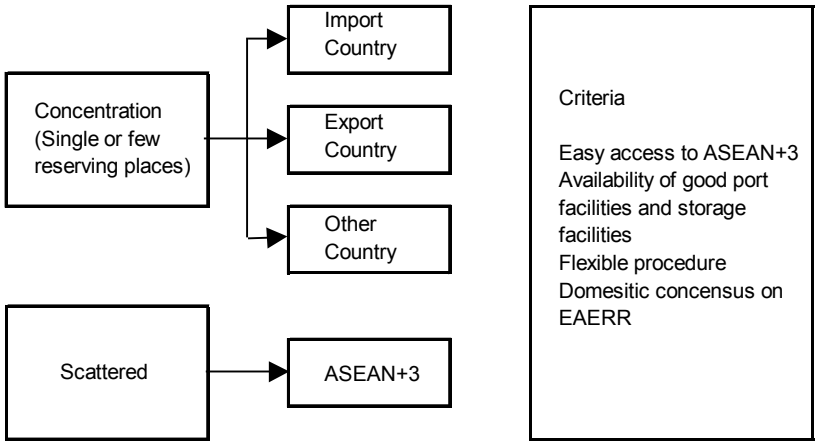

Figure 4.1 Determination Process of Location of Stockpiled Reserve