

# Enhancing Food Security by Cooperation among ASEAN Countries: A Review for Achieving Better Food Availability in the Region

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## Abstract:

Achieving food security is the challenging task at every level especially at developing countries. This paper reviews the literature of food security and learns what the way regional corporation forward in response to enhancing food security in ASEAN region specifically. It found that Indonesia has a number of safety net programs for vulnerable poor at micro level at emergency situation since 1990s, national price stabilization management system at macro level, active information system for climatic response and bilateral agreement with Vietnam for better food supply in the region. Based on the frameworks discussed in this paper, it shows that Indonesia has been on right track with its' own way for her huge population in achieving and enhancing food security.

[Key words] food security, trade, information system, agriculture innovation, regional cooperation

## I Introduction

Food security is the basic priority for every government to be fulfilled for their own populations. Nowadays, every country is facing with the problem of food security with varying level and the situation worst are developing countries. Therefore, this paper tries to explain what ASEAN nations are doing in enhancing food security along with the strategic five years plan regionally. It also takes a look at Indonesia among ASEAN nations to examine how she is doing to fulfill this task at developing country level with huge population.

The purpose of this paper is to review the literature of food security both at household and community level, to examine some existing problems facing in ASEAN nations in achieving better production of food and to learn how the way regional corporation forward in response to this problem in enhancing food security in the region.

This is the review paper, consists of five parts. The first part states the dominant role of agriculture in food security and poverty reducing as well as some challenges facing in agricultural sector in nations of the region.

The second part reviews food security concepts at two different levels, house hold and community level. It mentions food security as the basic right for human being and expresses the recommendation of world food summit 1996 that encourages in adopting cooperation strategy regionally as well as internationally in ensuring food security.

The third part discusses how ASEAN initiates with its strategic framework of five years plan starting from 2009 till 2013 and why it oversees its four main components in ensuring long term food security and improving the livelihoods of farmers in region. Increasing food production, reducing

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post-harvest losses, promotion of conducive market and trade for agriculture commodities and inputs, ensuring food stability, promotion availability and accessibility to agriculture inputs and operationalizing regional food emergency relief arrangement are the objectives of this strategic framework. In this part, it describes the basic framework of Timmer of 2010, by reviewing that how sustainable food security can be achieved both at micro level and macro level in response to emergency and in the long run. This framework could help to foster and better understanding of food security of the nations.

The fourth part concerns Indonesia to examine how it manages to cope with crises at its' huge population of developing country at the national level. It discusses the way of achieving food security in Indonesia such as its' price stability management system, providing programs such as conditional cash transfer, unconditional cash transfer and supplying of staple food: rice via RASKIN program for vulnerable poor at emergency situation, establishing agro-climatic posts in 100 priorities areas for climate information in order to support agriculture and its' agreement with Vietnam for food package via cooperation for better food supply in the region recently. It could find that the way of achieving food security in Indonesia is following the frameworks discussed and its status of food security has been improving according to statistical data.

In conclusion part, it will discuss the situation of increase agricultural production in ASEAN nations in general and mentions that achieving food security has many challenges in practice due to the fact that its vulnerability to climatic condition, social and economic condition of countries, trading system, food policy of each nation, etc.

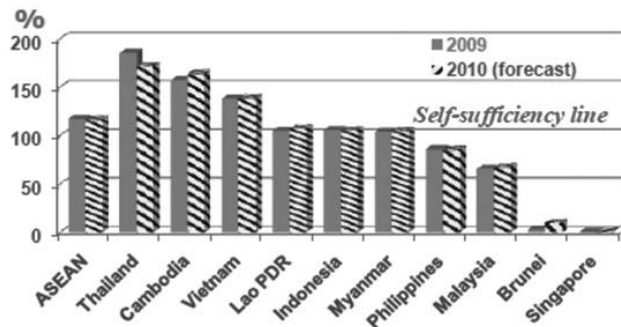
## **II Role of Agriculture as primary food production**

Globally, community's effort on agriculture will be continued for many years to come as 75 % of population work and live in rural area and 60% of them will remain engaged in agriculture till 2025 (Balisakan, 2005). In ASEAN<sup>1)</sup> region as well, agriculture is the dominant and biggest sector which is responsible for the employing majority of population acting as the key driver for growth, poverty reduction and security of region. It is vital in all ASEAN nations, with exception of Singapore; in terms of production and job creation as most of those countries are agrarian countries well-endowed with natural resources. Extensive fertile river basins with favorable weather conditions make agrarian Southeast Asian nations possible agriculture as primary source of income, employer of labor, and contributor to export revenues since many years. Agriculture has, therefore, remained one of the key sectors of their economies, despite success in manufacturing sector during the last decades. Even though the trend of Southeast Asian agriculture has been changing dramatically along with other sector development, they still need to focus on agriculture attentively in the light of food security concerns as well as poverty reduction. Agriculture that accounts for 11 % of GDP and 43 percent of employment in 2006 plays a major role in reducing poverty, especially in rural areas, of South East Asia (SEA) countries (ADB, 2009).

SEA region is one of the main producers and suppliers of grain in world market, as rice trading share of Southeast Asia in global market during 1995-99, was about 38% (Eng., 2004). Clearly, domestic production is the main source of food supply in this region where grain production, on average, self-sufficiency ratio<sup>2)</sup> (production per domestic utilization) accounts for 116.14 % in 2010 in ASEAN countries (ASEAN commodity outlook). Despite dependency on import is pretty low in

most of those countries, food sufficiency in terms of agricultural production has been undermined by irregular climate patterns, food policy, trade, ever-increasing population and problem of poverty, effects of globalization, etc. As a matter of fact, about 80 million people are still food insecure in SEA countries; regional food security is the primary concern for all nations. Moreover, food security remains fragile as it adversely affect the vulnerable poor affected also by global food price spike and economics climatic fluctuation and which are the reasons why regional cooperation is essentially needed in addressing on this matter cohesively.

Figure: Rice self-sufficiency in ASEAN nations



Source: ASEAN agricultural commodity outlook, 2010

### III Existence of Food Security as a basic right

The term food security is originated and defined by many scholars and interest groups from different backgrounds, which has reflected the attention of those interest groups since 1960s and 1970s (Hoddinott, 1999). It is also mentioned by Hoddinott in 1999 that there are about 200 definitions and 450 indicators of food security. Different definition of food security varies based on the facts of each definition's geographic focus, conceptual starting point and programming priority or level of analysis of each author, etc.

The term- food security, at national and global level, is more likely to interpret self-sufficiency of a country focusing on supply side of the food equation (Anderson, 2009). However, the attainment of food security should be concentrated on both the fulfillment of the demand for food supplies in the domestic market and the people's ability to purchase affordable, nutritious and healthy food products (Zamboni, 2010).

The most cited food security definition, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" was agreed upon at World Food Summit in 1996 (Anderson 2009).

It encompasses broadly not only quantity and quality aspects of food but also social and psychological aspects concerning with perspective of consumers' satisfaction, health and nutrition. These should be through reasonable access without compromising human dignity in affordable manner permanently rather than temporarily. It is argued that availability doesn't assure access and enough calories do not assure a healthy and nutritional diet (Anderson, 2009). In fact, meeting

the daily food need of individuals reflects the complexity of food security and also demands sound food policy in the sense of sufficient supply.

Generally speaking, food security can be divided into two categories namely (1) household and individual food security and (2) Community Food security.

As regards household level, the house hold is considered food secure if it has the ability to acquire the food needed by its members to be food secured (Anderson, 2009). The consequence of food insecurity, at house hold level, is analyzed by four dimensions such as (1) quantitative aspect (if no enough food) (2) qualitative aspect (reliance on inexpensive non-nutritious food) (3) psychological aspect (anxiety about food supply or stress associated with trying to meet daily food needs) and (4) social aspect (having to acquire food through socially unacceptable means such as charitable assistance, buying food on credit, and in some cases, stealing) (Radimer et al. 1992). With regard to measuring the household food security, the United States Department of Agriculture (USDA) presents a guide composed of 16 questions and scaling procedures in 2000.

At community level, there are five conceptual components: (1) universality: i.e. involvement of every one, (2) stability: i.e. sustainable access at all time (3) dignity (through normal food channel rather than emergency food assistance program), (4) quantity (of enough for a healthy active life) and (5) quality (for culturally appropriate, safe, nutritious food which is produced in environmentally sustainable ways) (USDA, 2002). It is discussed and defined by USDA that a community cannot be considered food secure if any of its members are experiencing food insecurity directly in their own lives. With the broader sense, Community food security stresses both sustainability of food systems and also the issues of social justice, self-reliance as well as community economic development which include an emphasis on organization and cooperation among all players in local or regional food systems (USDA, 2000).

Thus, the focus of household food security and community food security are closely linked with the same target of achieving food security, at which the former emphasizes on physical and economic access to food whereas the latter acknowledges comprehensively not only share the same focus as household food security but also the important role of economic, environmental and social aspects of food system (Power, 2005 and USDA).

Regarding classifying food insecurity, there are five phases for classifying food insecurity namely (1) generally food secure (2) chronically food secure (3) acute food and livelihood crisis (4) humanitarian emergency and (5) famine/ humanitarian crisis. Those phases can be classified by the five key indicators such as (1) under 5 mortality rates (2) stunning (3) water sanitation (4) livelihood access (female literacy rate, access to health, road access) and (5) hazards (FAO, 2006). Food insecure people are defined as those consuming less than the nutritional target of roughly 2100 calories per day per person (USDA, 2009).

Nowadays, every country is facing the problem of food insecurity with varying levels both at developed or developing countries. For example: the root cause of food insecurity for developing countries is poverty whereas high dependency on imported food due to low productivity and low self-sufficiency rate is, mostly, the case of developed countries. However, depending on food aid program is another case of food insecurity for vulnerable groups of both developing and developed countries which are at crisis of wars, riots, natural disasters, hunger, famine, etc.

In this regard, World Food Summit strongly suggests that each nation must adopt the strategy for food security through concreted action plan, at all levels, which is consistent with its resources

and capacities to achieve its individual goals while cooperating regionally and internationally in order to organize collective solutions to global issues of food security (World Food summit, 1996).

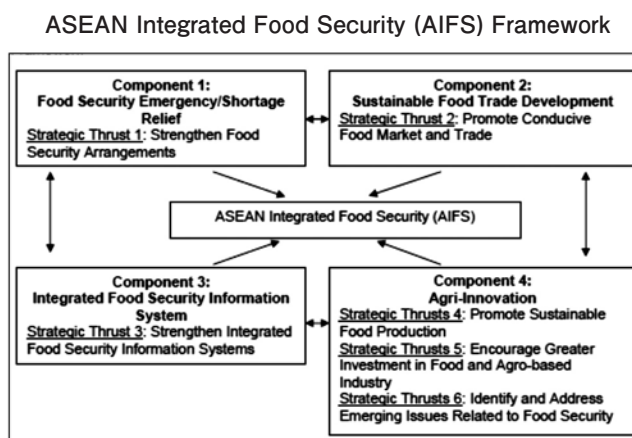
#### IV Regional cooperation for Enhancing Food security

With the goal of ensuring long-term food security and improving the livelihoods of farmers in ASEAN region, ASEAN member states (AMSs) pledged to adopt the ASEAN Integrated Food Security (AIFS) Framework and the Strategic Plan of Action on Food Security in the ASEAN Region (SPA-FS) with assurance of resources required to undertaking such a Plan of 2009–2013 (ASEAN AIFS's SPA-FS 2009–13).

Rice, maize, soybean, sugar and cassava are initial prioritized commodities for food security for the ASEAN region (ASEAN AIFS's SPA-FS 2009–13). In 2010, ASEAN's Food self-sufficiency ratio and food security ratio<sup>3)</sup> is 116.1 percent and 23.71 percent respectively (ASEAN commodity outlook, 2010). According to ADB statistical data, it is found that percentage of hunger in ASEAN's region was reduced from 24% in the 1990s to 17% in 2008. The target of Millennium Development Goal 1 (MDG1) with reduction of hunger to 14% in 2015 would be likely to achieve successfully (AFPRI, 2010). The driving force of that plan is the 2007–08 sharp increase in international food prices that increased food insecurity around the globe and exposed long term failures in functioning of the world food system (ASEAN AIFS's SPA-FS 2009–13). Therefore, examining underlying cause of food crisis and taking reactive as well as preventive measures are the essential tasks for AMSs not repeating that kind of crisis in the region but enhancing regional food security.

As a matter of permanent and high priority policy, that remarkable food security strategic plan is adopted on 1st March 2009 at 14th ASEAN summit, Chan-am, Thailand by reviewing AMSs' commitment to achieving of MDG of the World Food Summit. It is also determined to make ASEAN dynamic, resilient and cohesive regional organization for the well-being of its Member States and people with a balance given between economic growth and social development in order to reduce and not to create negative impacts to food security (ASEAN AIFS's SPA-FS 2009–13).

The following ASEAN Integrated Food security (AIFS) framework provides scope and pragmatic approaches with interrelated four components which are supported by six corresponding strategic thrusts supported by action programs, activities, responsible agencies and work schedules.



Source: ASEAN Integrated Food security (AIFS) framework 2009–13

Firstly, this ASEAN food security framework considered food security and emergency & shortage relief as the core component and fundamental part of framework while focusing on strengthening national food security programs / initiatives, and development of a regional effective and timely mechanism for supply of rice as food aid for emergency relief (food aid or grant) and/ or under unusual market situation (grant or loan agreement) (ASEAN AIFS's SPA-FS 2009-13). It aims at establishing a long-term mechanism for ASEAN plus Three Emergency Rice Reserve.

Secondly, sustainable food trade development to support fair/balanced food trade within the acceptable levels of food prices by developing a buffer mechanism is the aim of second component. It is hoped to help ensuring that due consideration is given to balancing domestic accessibility to food, intra and extra regional food trade, agreed criteria and conditions (i.e. high speculative food commodities such as rice, cooking oil, sugar and maize) for the application apply (ASEAN AIFS's SPA-FS 2009-13).

Thirdly, establishing an information network on food security among the Plus Three Countries is the component three for fast-tracking the current AFSIS project under an AMAF PLUS THREE initiative to provide a sound and timely information on outlook and surveillance report for food security policy planning, implementation and monitoring. It aims at other elements include Early Warning Information System, Mutual Technical Cooperation and Preparation of Commodity Outlook Reports in that component (ASEAN AIFS's SPA-FS 2009-13). This component is hoped to provide a basis for a regular monitoring and surveillance system to the making of sound development planning and policy decision to address food security and also the soaring food prices.

Finally, the long-term plan aiming at formulating and implementing a regional comprehensive research and development (R&D) plan, through public and private sector partnership, to promote efficient and sustainable food production, food consumption, post-harvest practices & loss reduction, marketing and trade is component 4. It is mentioned that R&D areas, through priority setting, may include strengthening and expanding agriculture cooperatives and farmers' organizations, agri-business entrepreneurship particularly SMEs, intra-regional contract farming, etc. In addition, other supporting activities include building upon the ASEAN Good Agriculture Practices (GAP), targeting at promoting sustainable agricultural practices with due consideration on environmental concern. In this context, GAP could be used as a market tool adding value to food and agriculture products, which in return could support sustainable food production and trade. The key roles of the governments are to encourage success models, support R&D, transfer of technology with capacity building, and develop GAP certification scheme and its accreditation system (ASEAN AIFS's SPA-FS 2009-13).

Regarding post-harvest technology innovation, it is vital in reduction of food losses while production that in turn increase food security through more availability of produces. As post-harvest losses, from farm to table, in Southeast Asian countries is between 10 and 37 %, post-harvest technology and practices should be upgraded to reduce the losses, to increase the farmer income, to maintain the quality and to promote food safety between harvesting and consumption steps (ADB, 2009).

All these component backed up by Action Programs and Activities are being tried with the objectives of increasing food production, reducing post-harvest losses, promotion of conductive market and trade for agriculture commodities and inputs, ensuring food stability, promotion availability and accessibility to agriculture inputs and operationalizing regional food emergency relief

arrangements.

Another basic policy framework proposed by Timmer, 2010 explained that, at the household level, food security of the poor household will be achieved by receiving transfer payment via safety net mechanisms during food crisis when prices rise sharply. At the macro level, it is suggested that policy makers must implement long run (five to ten years) measures to stimulate inclusive, pro-poor economic growth and to sustain that growth for decades (Timmer, 2010).

	Short Run	Long Run
<b>Macro</b>	Rice price stability and the role of rice reserves and international trade. Budget costs of safety nets to protect the poor, and impact of these transfers.	Policies for creating inclusive economic growth, including fiscal policy, management of price stability, the exchange rate, and the role of international trade.
<b>Micro</b>	Receipts from safety nets (including from the government), vulnerability to price shocks, and resilience in the face of other shocks to household welfare	Sustained poverty reduction and regular access to nutritious and healthy food. This is the definition of <i>sustainable food security</i>

Source: Timmer, 2010, basic frame work for understanding food security in Asia

## V Effectiveness in enhancing food security: the case of Indonesia

By analyzing above discussed two frameworks: ASEAN Integrated Food security (AIFS) framework and basic policy frame work for food security, it can be understood that among countries of this region, Indonesia has been on the right track and the most active country trying its best in enhancing food security practically since 1990s: Nevertheless, Indonesia has still had some barriers such as poverty, natural disasters, climate change, etc., like other developing countries of the region.

In Indonesia, National Food Logistic Agency (Bulog), one of the most important institutions for food security sector, manages buffer stock operation and domestic food price stabilizing through its monopoly over imports and distribution for price stabilizing (Yonekura, 2004). But some seasonal bans on import of rice pose negative impact on food availability due to food high price as 80% of the population is net consumer whilst 20% who gain are not the poorest (World Bank, 2005).

With the aim of helping vulnerable poor to cope with the impact of crisis, Indonesia’s social safety net covered a number of issues including food security, since the post 1998 economics crisis, by providing fuel subsidies through conditional cash transfer (CCT), providing income for poor through unconditional cash transfer (UCT) programs and supplying of rice (about 20kg per month) for the (9 million) poor house hold by RASKIN program to strengthen food security (Sudarno Sumarto and Samuel Bazzi, 2011).

In regard with information system, Meteorological, Climatological and Geophysical Agency of Indonesia announced in 2011, August that the Indonesia government would develop Agricultural

Meteorology Stations (SMPK), commonly known as agro-climate posts, in 100 priority areas for more accurate climate information that is key to securing food production ([www.thejakartapost.com](http://www.thejakartapost.com), 2011).

It is agreed between Indonesia and Vietnam, at bilateral meeting in September, 2011 that fish from Indonesia and rice from Vietnam will be in the form of package in food cooperation in becoming pillars for ASEAN food supply, to boost cooperation on food security with the aim of becoming the main suppliers of rice and fish in the region ([www.thejakartapost.com](http://www.thejakartapost.com), 2011).

## VI Conclusion

Achieving food security is descriptively dynamic but technically possible. In fact, it poses many challenges practically due to depending on many interacting variables within the food chain such as involvement of stakeholders with different interests, its' high dependency on climatic condition and natural resources in term of production as well as distribution, social and economic condition of countries, trading system and food policy of each nation, etc.

Moreover, it is impossible to achieve food security unless favorable weather condition as agricultural productivity is directly connective with climate condition. Climate change, due to the effect of global warming, becomes critical issue as it is threatening food security in many parts of the world. World food production chain has been affected adversely by unpredictable weather condition such as severe drought and floods especially in food production developing countries that are vulnerable and prone to natural disasters. To tackle climate change problem, two policy measures: mitigation as precautionary measures and adaption as reactive measures, can be part of the solution served as complementary for reduction of emission greenhouse gas (GHG) and increasing sink by offset scheme (IPCC, 2007).

Regarding increase production of grains in ASEAN nations, it could be concluded that developed countries enjoy increase in yield due to the use of better advanced technology such as farm management backed up by governments. Meanwhile, developing countries such as Cambodia, Laos, and Myanmar are still relying mainly on favorable weather conditions and expansion of arable land for increase production, according to statistical data of ASEAN commodity outlook.

During sharp increase food prices and economics crisis, countries of the region have suffered bitter experiences as well as gained coping strategies as lessons learnt. By taking example of Indonesia, leading country for striving food security with tremendous efforts, other countries in the region can also achieve food security by adapting with their situations if in the case of facing with food insecurity especially at the time of crisis. But on the other hand, from the supply side, food production in the form of man-made capital at this changing climate condition in given degraded as well as degrading ecosystem as scare resources is the difficult task of necessity in ensuring and enhancing conventional food security.

Availability of daily food, in some cases especially at the worst place of globe such as at the horn of Africa, still poses huge difficulty for them until now at this globalization era. What really food availability means to them is just to continue the chance of survival on earth, only a matter of basic right for human being rather than amenity for enjoying comfort life. Therefore, all efforts and strategic thrusts in enhancing food security through regional cooperation is hoped to accomplish in urgent manner for humanity of the 21st century.



## Notes

- 1) The countries covered include Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam, as the focus is on ASEAN countries.
- 2) Self-sufficiency ratio is the ratio of rice production to domestic utilization.
- 3) Food security ratio is the ratio of beginning stock to domestic utilization in ASEAN countries.

## References

- [1] Achmad Suryana, 9–8 December, 2008, UNESCAP policy dialogue, Sustainable food security development in Indonesia: Policies and its implementation.
- [2] ADB, 2009, Addressing the pre and post-harvest challenges of rice supply chain.
- [3] ADB, 2009, Building climate resilience in the agricultural sector of Asia and the Pacific.
- [4] AFPRI, 2010, Global hunger Index.
- [5] Arsenio M. Balisakan, 2005; Averting Hunger and Food Insecurity in Asia, *Asian Journal of Agriculture and Development*, Vol. 1, No. 1.
- [6] ASEAN agricultural commodity outlook, No.4, June, 2010.
- [7] ASEAN integrated food security (aifs) framework and Strategic plan of action on food security in the ASEAN region (spa-fs) 2009–2013.
- [8] ASEAN integrated food security, component and strategic thrusts of ASEAN Integrated Food Security Framework of appendix 1.
- [9] C. Peter Timmer, No.15, September 2010, ADB working paper: The changing role of rice in Asia's Food security.
- [10] FAO, 1996, Report of World Food summit, 1996, <http://www.fao.org/DOCREP/003/W3548E/W3548E00.HTML>
- [11] FAO 2006, Integrated Food Security Phase Classification.
- [12] FAO, 2010, Climate smart agriculture: policies, practices and financing for food security, adaptation and mitigation.
- [13] Hoddinott, John. 1999, International Food Policy Research Institute, Technical Guide 7, Choosing Outcome Indicators of Household Food Security, IPCC. 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Geneva, Switzerland.
- [14] Per Pinstrup-Anderson 2009, Food Security: Definition and Measurement, Springer article: Food Sec. (2009) 1:5–7 DOI 10.1007/s12571-008-0002-y.
- [15] Pierre van der Eng, 2004, Productivity and comparative advantages in Rice Agriculture in south East Asia since 1870.
- [16] Sudarno Sumarto and Samuel Bazzi, 2011, Social Protection in Indonesia: Past Experiences and Lessons for the Future.
- [17] The Jakarta Post: Agro-climate station, 2011 <http://www.thejakartapost.com/news/2011/07/27/%E2%80%98agro-climate-%E2%80%99-posts-%E2%80%98may-help%E2%80%99-food-security.html>
- [18] The Jakarta Post: Bilateral meeting of Indonesia and Vietnam 2011, <http://www.thejakartapost.com/news/2011/09/15/indonesia-vietnam-boost-cooperation-food-security.html>
- [19] UCDAVIC, 2003, small scale post-harvest handling practices, a manual for horticulture crops (4th edition) USDA, 2009, food security assessment, 2008–09.
- [20] World Bank, 2005, feeding Indonesia: ideas for the future Yonekura, 2004 about BULOG,

institutional reform in Indonesia's food security sector: the transformation of bulog into a public corporation.

[21] Zamroni Salim, June 2010, Food Security Policies in Maritime Southeast Asia: The case of Indonesia.