DESCRIPTION OF THE AGRICULTURAL DEVELOPMENT IN VIETNAM AND THE SEAN COUNTRIES (SOUTH EAST ASIAN COUNTRIES)

A MEZŐGAZDASÁGI FEJLŐDÉS VIETNÁMBAN ÉS DÉL-KELET-ÁZSIA ORSZÁGAIBAN

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Abstract

Nowadays agricultural development still plays an important role for many countries in the world, especially for the agriculture-based countries. In this case, Vietnam is one of this kind of agricultural countries and is one of a member state of ASEAN countries where almost all countries are based on the agricultural advantages, natural conditions of tropical weather for socio-economic development. As the statement in the World development report 2008 - "Agriculture for Development" of the World Banksays: "*The case for using the powers of agriculture for poverty reduction and as an engine of growth for the agriculture-based countries is still very much alive today... New opportunities for realizing this potential are present today, but also coming are new challenges..."* (The International Bank for Reconstruction and Development/The World Bank, 2007:44). Therefore this topic would like to find a diversification of agricultural development in Vietnam and the ASEAN countries by using FAOSTAT, related reviews in a scope of the significant and necessary threshold of the primary sector in the economy - Agriculture.

Keywords: Vietnam, ASEAN countries, agricultural development, World Bank, description

1. Introduction

Socio-economic conditions with common access for agriculture

12 things are known about Asian agriculture on website www.adb.org/features/12-things-know-2012-asian-agriculture, as the Asian Development Bank (ADB) has shown a glance of the Asian agricultural sector in the region. Some highlighted features can be seen here, such as: More than 2.2 billion people in the region rely on agriculture for their livelihoods (ADB 2009); Rice is by far the most important crop throughout Asia: 90% of the world's production and consumption occurs in this region (ADB 2010); With 25% of the world's populations and only 7% of the world's arable land, projected imports of agrofood in the coming decades will have significant implications within Asia (ADB 2010). Therefore "with rising populations, increasing food prices and environmental concern, Asia's agricultural sector faces a raft of challenges." (Source: https://www.adb.org/).

Ponciano S. Intal, Jr et al. (2011), confirmed that "Despite the surge in manufactures trade and production networks that anchor the industrialization process in East Asia,

agriculture remains an important sector of the economy of most developing countries in the region. Indeed, for the lower-income member countries of the Association of Southeast Asian Nations (ASEAN) that rely preponderantly on agriculture, agricultural development is the key to widespread economic growth and rapid poverty reduction." (Ponciano S. Intal Jr et al., 2011: Preface)

Continually, there is a view about the agricultural sector in Vietnam, where prominent economic transition has taken place in the period of 30 years since 1980s. As the opinions of OECD experts: "Vietnam on the other hand is interesting because it is a transition economy, shifting from central planning to a market economy over the period from the latter 1980s through the 1990s. It is also interesting because both its overall and its agricultural sector economic growth rates have been excellent in the 1990s....Part of this rapid growth rate is due to the new institutions that were adopted affecting the agricultural sector, notably the changes in property rights and land tenure arrangements." (Rick Barichello, 2004:13, 16).

So the finding of this topic is the description of agricultural development interrelated to the efficiency of socio-economic development.

2. Literature review

Definition of agricultural development

As the definition of agricultural development of OECD says, the context is: "Agricultural development is defined as the process that creates the conditions for the fulfilment of agricultural potential. Those conditions include the accumulation of knowledge and availability of technology as well as the allocation of inputs and output." (Juan R. de Laiglesia, 2006:10).

There is a meaning of the concept about agricultural development on the website of EU with the main discipline: Sustainable agriculture and rural development policy is the agricultural development - it is explained in the following way: "Supporting sustainable agricultural development also involves ensuring and maintaining productive capacity for the future and increasing productivity without damaging the environment or jeopardizing natural resources. In addition, it requires respect for and recognition of local knowledge and local management of natural resources, and efforts to promote the capabilities of current generations without compromising the prospects of future ones. Consequently, economic and environmental sustainability, adequate farmer incomes, productive capacity for the future, improved food security and social sustainability are important elements of developing countries' agricultural development." (Source: https://ec.europa.eu/).

On the other hand, the World Bank in World development report 2008 defined a notion "Agriculture for development agenda" is "Making agriculture more effective in supporting sustainable growth and reducing poverty starts with a favorable sociopolitical climate, adequate governance, and sound macroeconomic fundamentals. It then requires defining an agenda for each country type, based on a combination of four policy objectives:

- *Objective 1*. Improve access to markets and establish efficient value chains
- Objective 2. Enhance smallholder competitiveness and facilitate market entry
- *Objective 3.* Improve livelihoods in subsistence farming and low-skill rural occupations
- *Objective 4*. Increase employment in agriculture and the rural nonfarm economy, and enhance skills (The IBRD/ The World Bank, 2007:18, 19).

Brief meaning of agricultural development for Vietnam and the ASEAN countries

"In 2011-20 Vietnam will enter the third decade of growth based on its reintegration with the global economy. The country that in the 1990s was counted among the World's very poorest is now poised to become a middle-income economy, having leapfrogged many others in the process. ... The economy has been transformed by growth from overwhelmingly rural, agrarian and low-tech to a vibrant mixed marketplace with bustling cities, highly diverse industries and advanced information and communications networks. ...For all this progress, the wealth of today's Vietnam is still based on two fundamental endowments: labour and land." (Ian Coxhead et al., 2010:i, Excutive summary). Therefore, not only agricultural development but also economic development in general in Vietnam depend on the efficient and dynamic applications of the country's labour, land and other natural resources to the have greatest economic effect.

As well as in the White paper about "Efficient agriculture, stronger economies in ASEAN" implemented by Syngenta and the Business Council for Sustainable Development Singapore, 2016, there is one more literature to supplement for the common circumstance of ASEAN countries such as: "Agriculture has played and continues to play an important role in the ASEAN region despite its declining contribution to the region's GDP during the last two decades. It is viewed as an important driver for social, inclusive growth; an important source of export earnings in support of economic development; a guarantor of food availability to its citizens for staple and non-staple food items; and a source of employment directly and through agriculture-related, value adding activities."; and "Endowed with abundant resources including land, water and people, ASEAN's agriculture sector has the potential to have even more of a positive impact on the region's food security and economic progress" (White paper - Syngenta and BCSD Singapore, 2016:3, 4, 5).

3. Materials and Methods

This topic is a research by reviewing the studies about agricultural development in Vietnam and the ASEAN countries in a scope of the significant and necessary threshold of the primary sector in economy - Agriculture.



Map of ASEAN countries

Source: FAOSTAT 2017 - http://www.fao.org

By using secondary data in related reviews of WorldBank and FAOSTAT website to create a comparison by ratio, index and using references on reviews about agricultural development and the agriculture sector in general, the objective of this topic is a presentation on the diversification of agricultural development taken placerecently in Vietnam and the ASEAN countries.

4. Results and discussion

1. Characteristics of agricultural development in Vietnam and the ASEAN countries - Agriculture in the ASEAN countries

ASEAN countries nowadays include 10 member states named in Table 1 as below and it is an active region in the world economy with abundant advantages in natural resources, demography and tropical climate.

	Country	Key Statistics				
No		Country area (1000 ha)	Land area (1000 ha)	Agricultural area (1000 ha)	Forest (1000 ha)	
1	Brunei Darussalam	577	527	14.4	380	
2	Cambodia	18,104	17,652	5,455	9,584.4	
3	Indonesia	191,093.1	181,157	57,000	91,694.4	
4	Lao PDR	23,680	23,080	2,369	18,572.24	
5	Malaysia	33,080	32,855	7,839	22,180.8	
6	Myanmar	67,659	65,308	12,645	29,587.4	
7	Philippines	30,000	29,817	12,440	7,800	
8	Singapore	71.9	70.9	0.66	16.35	
9	Thailand	51,312	51,089	22,110	16,369	
10	Vietnam	33,096.7	31,007	10,873.7	14,644	
	Total area	448,673.7	432,562.9	130,746.76	210,828.59	
	Total area in km ²	4,486,737.00	4,325,629.00	1,307,467.60	2,108,285.90	

Table 1.: Areas of ASEAN member states

(Source: FAOSTAT - http://www.fao.org)

In a White Paper about Efficient agriculture, stronger economies in ASEAN implemented by Syngenta and the Business Council for Sustainable Development Singapore, 2016, the role of agriculture for development in ASEAN it had been stated that: "Agriculture is central to the economies of the region and provides livelihoods to a large segment of the population.... As population continues to grow and ASEAN's middle-class population further increases, demand for not only more food but also more diverse foods will also rise, while our natural resource base diminishes. This means that the need for more efficient agriculture has never been greater" (White paper - Syngenta and BCSD Singapore, 2016:1).



According to an extract from the report "Agricultural Development, Trade and Regional Cooperation in Developing East Asia" of Economic Research Institute for ASEAN and East Asia in 2011, this topic has a view for characteristics of agricultural development in Vietnam and ASEAN countries only in some aspects as can be seen below.

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 Countries ranging from low-income countries highly dependent on agriculture to rich and industrialized countries. 	Name of countries in ASEAN
agriculture is a major sector of the whole economy, accounting for at least 30% of GDP	Myanmar, Laos and Cambodia
agriculture remains an important sector, contributing between 10% and less than 30% to GDP	Indonesia, Malaysia, Philippines, Thailand and Vietnam.
highly industrialized countries and high -income city-states where agriculture is a minor segment of the whole economy	Brunei and Singapore
2. The contribution of the agricultural sector with respect to national employment	Name of countries in ASEAN
Agriculture is the dominant sector contributing to more than 50% of total employment	Cambodia, Laos, Myanmar and Vietnam
Agriculture is a minor employment generator in highly industrialized countries and high-income city states contributing to less than 10% of total employment.	Singapore, Brunei and Malaysia
Between the two groups are the countries where agriculture remains an important generator of employment, contributing least to one- third, albeit not the dominant one $(1/3 < x < 1/2)$	Indonesia, Philippines and Thailand
3. Agricultural development as engine of growth and main driver of poverty reduction	Name of countries in ASEAN
agriculture sector is the main sector of the economy: the majority of the population is in the rural sector and most of the poor live in the rural areas but abundance of land or natural resources	Cambodia, Laos and Myanmar
agricultural development has a larger impact on poverty reduction efforts compared to manufacturing: a substantial increase in agriculture production and productivity, followed by a sharp growth in labor-intensive manufacturers	Vietnam and Indonesia

 Table 2.: ASEAN countries' categories in the agricultural sector

(Source: Ponciano S. Intal Jr et al., 2011:4, 5, 13)

Transformation of Vietnam's agriculture

In the FAO Vietnam Country Programming Framework 2012-2016, (FAO, 2013), the agricultural development in Vietnam had been designed in a SWOT model as can be seen below:

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 Strength Since 2000: agricultural structure has been changing positively towards improved productivity, quality, efficiency, more market oriented and demand-driven growth. Agricultural production developed despite of market fluctuations, natural disasters and diseases. Agricultural prices are compared to neighboring countries (especially food prices) at low level, and low labor costs that helped the country attract foreign investment, made important contribution to economic growth and social stability. Agricultural export played important roles in international and regional markets of commodities: rice, rubber, coffee, pepper, cashew, wood products and fisheries products. 	 Weakness Agricultural growth has benefited from land expansion, intensive use of intermediate inputs (fertilizers, pesticides), and improved irrigation system. Land fragmentation, outdated technology, low production efficiency and product quality, poor food safety, fragmented supply chain, weak management of product quarantine and quality control were the main reasons for the lower competitiveness of agricultural production.
Opportunities Agricultural growth and rural development made important contributions to political and socio-economic stability, generated a solid foundation for the " <i>Doi Moi</i> " process from 1986. Agriculture and rural sector have acted as a safeguard for the economy in the most difficult times and in the remarkable development of Vietnam.	 Challenges Structure of agriculture sector does not reflect the comparative advantage and its products, has not been able to capture and meet the potential demand for the future. Cultivation, especially rice, still accounts for a large share in the sectorial structure despite the low economic efficiency of rice. Livestock has grown rapidly but unstably and unsustainably, and still on a limited scale. Fishery and aquaculture lack stability and linkages between producers, traders and processing enterprises. The processing methods pollute the environment. In-land fishery outpaces the seafood reproduction capacity, and off-shore fishery is inefficient. For forestry, its contribution to economic growth is still too low in comparison to its potential.

Table 3.: SWOT model for the agricultural sector in Vietnam

(Source: FAO Vietnam Country Programming Framework 2012-2016, FAO 2013:11, 12)

Beside the picture of agricultural development in Vietnam in general, the trend of structural transformation in agriculture of the country had been presented in the Vietnam Development Report 2016 of World Bank to answer the question "Where is Vietnam today?" In this report the World Bank (2016) stated that there were some changes which are tobe determined in the agricultural sector in Vietnam:

- the share of agriculture in employment, which fell from 65 percent in 2000 to 47 percent in 2012: The transformation from farm to non-farm activities at the household level is reflected in households' income structure (World Bank, 2016:3).



Figure 2.: Employment in agriculture (%)

- the share of agriculture in Vietnamese GDP and trade has been relatively flat since the mid-2000s: agriculture's steady share in trade can be attributed to various factors, including favorable international commodity prices, changing patterns of domestic demand, and industry-specific developments. (World Bank, 2016:3, 4)





http://www.fao.org/faostat/en

- changes in agricultural land-use and the structure of production: Vietnam's agricultural land-use reflects the historical importance and dominant policy and public investment attention to rice, together with the agricultural sector's response to international market opportunities from the mid-1990s onward (World Bank, 2016:8).

http://www.fao.org/faostat/en

Figure 4.: Agricultural system in year 2000 (*, **) and 2014



(**) Water withdrawal by agriculture (% of total) in year 2000

(*) Area irrigated (% area equipped for irrigation) in year 2000

http://www.fao.org/faostat/en

- Shortcomings in agricultural growth in Vietnam nowadays

Ian Coxhead et al., 2010, had studied the shortcomings of agricultural growth in Vietnam with some significant aspects such as:

Vietnam's land-labour ratio is one of the lowest in the world, and this is a key factor responsible for depressing farm incomes and constraining their growth. Farm land fragmentation (especially in Northern provinces), land size limits, and imperfect land markets preventing consolidation and expansion are all constraints operating on land... Agricultural growth generates job growth and rural development so the task of creating jobs, alleviating poverty and raising incomes in Vietnam is too big to be left to agricultural development alone."(Ian Coxhead et al., 2010:x).

Therefore, the recommendation for the long-term development strategy for Vietnam's agricultural and rural development should be to ensure a continuation of transitional growth; to take measures to anticipate the need for more skill-based, and less resource-driven growth in the future with three key strategic options:

1. improving incentives for efficient resource allocation within the agricultural economy and reducing institutional obstacles to least-cost input supply and profitable post-harvest processing and trade;

2. leveraging public investments in infrastructure, R&D, and rural credit through partnerships with the private sector; and

3. ensuring that labour and other resources can move freely in and out of the rural economy in response to productive opportunities." (Ian Coxhead et al., 2010:xi).

2. Advantages and difficulties in Vietnam and ASEAN countries through agricultural indicators

- Agriculture advantages in ASEAN countries

Based on national nature conditions and distributions of socio-economic development, it is strongly advised to draw the progress of agricultural production from ASEAN countries. "ASEAN is one of the most productive agricultural baskets in the world. In 2012, the region produced 129 million tons of rice, 40 million tons of corn, 171 million tons of sugarcane, 1.44 million tons of soybean, and 70.34 million tons of cassava. Rice production is forecast to increase to 132.87 million tons in 2013. ...ASEAN is likely to increase exports to 18.28 million tons. While domestic utilization is projected to increase to 114.57 million from 113.04 million tons in 2012, self-sufficiency (production to domestic utilization) ratio is still assured at 116%."



http://www.fao.org/faostat/en

The common achievements of ASEAN countries in agricultural production in some main aspects are as below:

- No boundaries: most ASEAN countries are yet to reach their production boundaries. On the region's balanced climate, fertile lands, and mix of lowlands and uplands, forests, rivers, and coastlines: there are opportunities for crop and livestock production, in managing food supply chain, agriculture infrastructure and safety and agribusiness.



Figure 6.: Arable land in year 2014

http://www.fao.org/faostat/en

- Growth drivers: The ASEAN region is home to around 600 million people as its main food markets. ASEAN can act as the supply base for its larger neighbours.



Figure 7.: ASEAN countries, Cereal import dependency ratio (%)

http://www.fao.org/faostat/en

- Towards regional integration: The agricultural sector is off to reach its target for the ASEAN Economic Community in 2015 through increased efforts to ease trade between member states, allowing faster movement of perishable goods across long distances.... Region-wide, priority is given to the ASEAN Highway Network which involves upgrading of below Class III roads in designated Transit Transport Routes, and completion of the Singapore Kunming Rail Link which is intended to link seven ASEAN countries (Singapore, Malaysia, Thailand, Cambodia, Vietnam, Myanmar, and Lao) to China. (Source: http://investasean.asean.org/)

- Difficulties of ASEAN agriculture

"Agriculture has played and continues to play an important role in the ASEAN region despite its declining contribution to the region's GDP during the last two decades. ASEAN agriculture remains a powerhouse for the production and supply of important food items. It is home to the world's top two largest rice exporters (Thailand and Vietnam) and has among the top three exporting countries for pineapples, bananas, mango, sugar crops, coffee, cashew nuts and cassava. It is the top producer and exporter of palm oil, coconut and rubber and a major producer and exporter of seafood. In the ASEAN region available statistics show more than 100 million farmers. ... The number of farm holdings less than 1 ha were, for Indonesia, Vietnam, Philippines and Myanmar, respectively, 18.6 million, 9.1 million, 1.9 million and 1.2 million, in 2013." (White paper - Syngenta and BCSD Singapore, 2016:3, 4)

Table 4.: Challenges and Recommendations for ASEAN agriculture under the ASEAN Vision 2025

Challenges to ASEAN agriculture

Declining Performance of Agriculture:

Farmers in ASEAN are rarely able to achieve more than 70% of potential yields due to a range of agronomic and economic constraints. It is necessary to consider the inter-link between ASEAN crop yields and those in the extra-ASEAN.

Diminishing Quality and Quantity of Natural Resources and Climate Change:

Changes in dietary preferences and increases in food prices are among the factors that have led to the expansion of land used for crops as a percentage of total land area in most of ASEAN while forest areas have declined significantly.

Policy Approaches to Agriculture and Food Security in ASEAN:

Member countries have differing policies to ensure food security, from declared self-sufficiency (rice for Indonesia, Philippines) to self-reliance (purchase food through imports, i.e. Singapore, Brunei Darussalam) and focus on more "export-oriented" agriculture (palm oil and rubber: Indonesia, Malaysia, cacao and coffee in Vietnam) while others recognize the importance of both export and food security needs (Thailand, Vietnam).

Recommendations for ASEAN agriculture

- Explicit pronouncements at highest ASEAN government levels to support public-private synergies. Many of the challenges to ASEAN agriculture and food security cannot be solved by a single entity.

- Encourage policies which increase private sector investment in R&D for food production, processing, distribution and safe supply chains. . It is essential that ASEAN develops ways to harness this huge private sector investment for the benefit of the millions of smallholders, in a "win-win" situation.

- Support for policies and implementation guidelines which enable inclusive agribusiness.

(Source: White paper - Syngenta and BCSD Singapore, 2016:4, 5, 9)

Table 5.: Structure of agricultural production in Vietnam

Agricultural production units in Vietnam				
"Agricultural" households	8.9 million in 2011			
"Farms"	126,000 in 2011			
"Agricultural Enterprises"	2,536 in 2011			
Production cooperatives	6,065 in 2011			
Other entities: farms, other domestic agencies, and foreign individuals/companies				
Vietnamese agriculture at a crossroads				
enormous progress: Vietnam's successes in poverty reduction, national food security, and social stability	Ranks among the top of middle-income countries; the top of five global exporters in products as diverse as shrimp, coffee, cashews, rice and pepper			
agricultural performance: total factor productivity decline in recent years - lags behind regional peers in relation to agricultural land, labour, and water productivity	A chasm is forming between farm and non-farm incomes; income inequality is rising within rural areas; agricultural trade is in the form of raw commodities even at lower prices; growing concerns about food safety.			
increasing environmental cost: consequences of Vietnam's agricultural success	expanded or more intensive use of land and other natural resources, and heavy use of fertilizer and other agro-chemicals; ranging from deforestation and fishery resource depletion to a growing incidence of land degradation and water pollution.			
Vietnam's agricultural sector needs to generate "more from less."	Products with assurances relating to quality, safety, and sustainability; generate more economic value for farmer and consumer welfare - using less natural and human capital, less harmful intermediate inputs; Future growth can rely primarily on increased efficiency, innovation, diversification and value addition.			

(Source: World Bank, 2016:9, xi, xii, Executive summary)

- Comparison of a ratio of agricultural indicators in Vietnam with ASEAN countries

In the circumstance of data indicators for Vietnam's economy and agricultural production in particular as well as for ASEAN countries on FAOSTAT website (2017) there are significant statistics and meaning for evaluation and access to studies about agricultural development and also about decision-making for a strategy or a plan.



Figure 8.: Food supply: Production indices in period 1990-2014

Table 6. below shows the overall assessment for comparison of Vietnam's indicators with ASEAN average in three decades recently and whatcan be expected for conduction in macro and micro-economic plans of the Vietnamese government by learning lessons from the ASEAN neighbours.

Ratio of:	1990	2000	2014		
Population (millions)	0.77	0.77	0.73		
Employment in agriculture (%)		1.50	1.49		
Agricultural value added per worker (constant US\$)	0.03	0.01	0.01		
GDP per capita (US\$, PPP)	0.04	0.07	0.13		
Forest area (%)	0.58	0.77	0.96		
Agriculture, value added (% GDP)	1.27	0.81	1.20		
Food supply: Production indices (2004-06=100):					
Cereals, Livestock, Fish	0.56	1.20	1.21		
Food supply: Net trade (million US\$), Cereal	0.79	1.98	22.62		
Fertilizers - Consumption in nutrients (kg of nutrients					
per ha), Nitrogen		0.79	0.49		
Area harvested (1000 ha)			0.82		
Area irrigated (% area equipped for irrigation)			1.23		

Table 6.: Comparison of Vietnam indicators with ASEAN average

Source: Own calculation based on "FAO Statistical Pocketbook 2015 - World food and agriculture" and Data on website http://www.fao.org/faostat/en/#data, 2017

http://www.fao.org/faostat/en

It is a fact that Vietnam is still a poor country in the ASEAN nations (low GDP per capita, PPP) due to the fact that agricultural development has dynamic pace along the time (in the top of exporters in the ASEAN region in cereal, industry plants, fish...) and Vietnam's economy grows more stably and rapidly than in the past but this growth has a lot more shortcomings than other ASEAN countries (especial low in agricultural value added per worker, high in employment ratio in agriculture, high in agricultural value added of GDP.) which continues to be a challenge for Vietnam's efficient agricultural development today.

5. Discussion

Agricultural and rural development is an increasing proportion in the economy, it is more concerned in socio-economic development in Vietnam and in the ASEAN countries.

According to "the ASEAN Vision 2025 articulated by ASEAN leaders for the post-2015 period", there is an aim to create an integrated ASEAN market with strong trade, people and investment flows between the member economies. Currently, agriculture and food security are primarily addressed within the AEC (ASEAN Economic Community)". Otherwise "the post-2015 ASCC (ASEAN Socio-Cultural Community) blueprint has to recognize the inter-linkages between food security, climate change and farmer livelihoods. The insecurities of vulnerable populations and their lack of adaptive capacities need to be addressed under the umbrella of a single ASEAN Community". (Syngenta and BCSD Singapore, 2016:7).

Considering the access of Vietnam's agricultural development by the report of the World Bank in an article: "Transforming Vietnam's Agriculture Sector Will Stimulate Higher Growth", website www.worldbank.org, September 2016, says reforms and policy shifts are essential to the success for agricultural development in Vietnam. It continues saying that "Vietnam's agriculture and overall food system are at a turning point. While having a strong track record and ample opportunities for future growth - both at home and abroad - the sector faces major demographic, economic, and environmental challenges.... To remain competitive in the international market, Vietnam needs to improve supply, quality, and food safety with added value. So "Change will help overcome these challenges, ensure the future of agricultural growth, and better meet the expectations and aspirations of the people of Vietnam". And an agenda of short- and longer-term strengthening of public and market institutions which will be needed to achieve the ambitious goals for Vietnam's agriculture and overall food system."

Finally, the most important question to be addressed is *how to formulate strategies for sustaining Vietnam's agricultural development* in the context of globalization and rapid structural change in the period between 2011-2020. Vietnam is still very poor (with per capita income less than 10% of the world average), but it is growing rapidly. As the country moves toward middle-income status, its agricultural sector should be assisted to evolve appropriately, adapting to changed circumstances caused by the growth of secondary and tertiary sectors, yet remaining dynamic and innovative as befits a major sectoral source of staple foods, employment, household income, and foreign exchange. (Ian Coxhead et al., 2010:66).

To sum up, agricultural development is still having an important role for almost ASEAN countries with crowded rural population and diversity of topography for agricultural production.

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