

VIETNAM'S AGRICULTURE TOWARDS SUSTAINABLE DEVELOPMENT: OPPORTUNITIES, CHALLENGES AND SOLUTIONS IN THE CONTEXT OF INTERNATIONAL ECONOMIC INTEGRATION NOWADAYS

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ABSTRACT

The paper focuses on the development of agricultural sector in Vietnam from the 1986 “Economic reform” to the present, especially in recent years (2006 up to now) by using secondary data which is mainly collected from the Vietnam’s General Statistics Office and some organizations such as WB, ADB, and UNDP. The article highlights the important role of Vietnam agriculture through its contribution to economic growth and gross domestic product (GDP), export value of the agricultural sector out of total export value, agricultural sector’s labor structure and productivity. In addition to the achievements and shortages of Vietnam’s agriculture, the article also points out the opportunities and challenges in Vietnam’s agricultural development in the context of international economic integration today. At the same time, the article offers a number of main solutions to promote sustainable agricultural development that brings Vietnam agriculture to participate more actively in the global economy in general and in the world agriculture sector in particular.

Key words: Agricultural development, Vietnam agricultural development, Sustainable development.

Introduction

As a developing country in Southeast Asia, Vietnam have many favorable natural conditions to develop agriculture. Vietnam has a tropical monsoon climate and heavy rainfall, with a population of more than 94 million (2016), of which nearly 70% live in rural areas. Agricultural workers account for about 42% out of labor force. This paper focus on (i) the situation of Vietnam’s agricultural development in the period of 2006 – 2016; (ii) opportunities and challenges for Vietnam agriculture and (iii) solutions for sustainable agriculture development in the future. This paper uses the secondary data gathered from officially international and domestic sources such as the Vietnam’s General Statistics Office, Vietnam’s Ministry of Agriculture and Rural Development, WB, ADB, OECD... By using descriptive statistical methods, economic analysis methods to analyze and synthesize data, this paper shows the actual situation of Vietnam’s agriculture sector, its contribution to economic growth and GDP, export value, labor structure and productivity in the agriculture sector. Besides that, this analysis shows that Vietnam agriculture has not sustainably developed such as poor agricultural product value chains, lack of sustainable links between production and consumption, reliance on nature and traditional markets.

The study also points out that globalization and international economic integration have opened up opportunities for Vietnam’s agriculture to expand markets and receive foreign investment waves to overcome the challenges from capital and high-tech. This is also a chance to participate into the globally agricultural value chains. However, there are many challenges for Vietnam such as: low competitiveness, higher and higher pressure on employment of rural workers, highly dependence on nature in the context of narrowed land fund, climate change and environmental degradation. From then on, the solutions for Vietnam agricultural development towards sustainability are the big question for state management agencies as well as researchers and scientists in the coming time.

SUBJECTS AND METHODS

Subjects

Vietnam's agricultural sector in terms of development status, opportunities and challenges, some basic solutions towards sustainable development in the coming time.

Data and Methods

The article’s research data is secondary data source which is mainly collected from Vietnamese government agencies such as the General Statistics Office (GSO), Ministry of Agriculture and Rural Development, Ministry of Natural Resources and Environment and reports on Vietnam agriculture from the WB, ADB, and UNDP. Specifically, the author refers to data sources about the growth rate of Vietnam’s agricultural sector, the contribution of agriculture to economic growth, GDP and Vietnamese exports, the structure of the agricultural sector, labor structure, labor productivity and investment efficiency.

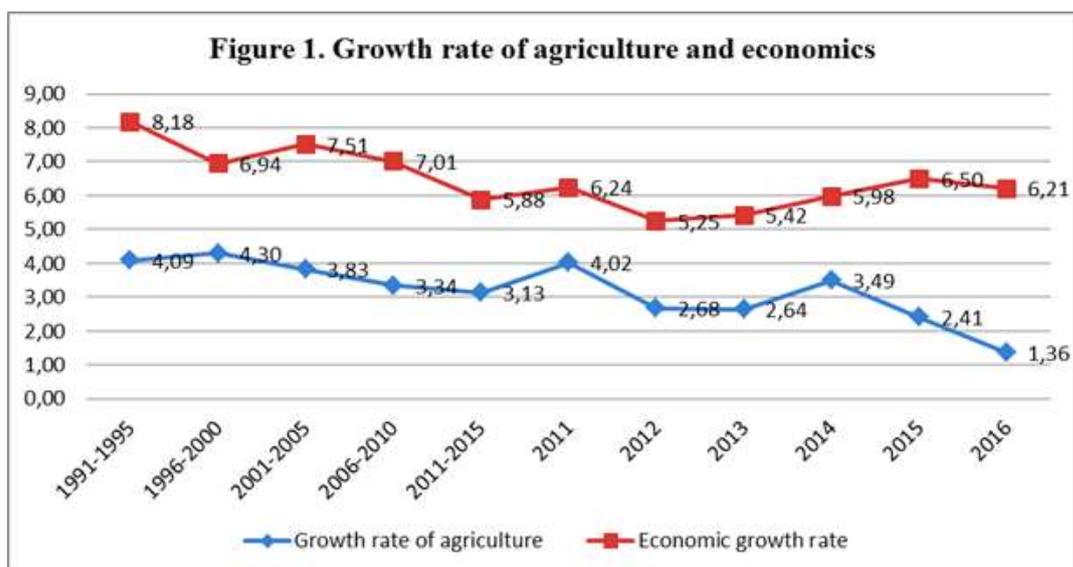
The main methods of the article are statistical analysis, economic analysis to compile and analyze data.

RESULTS AND DISCUSSION

Situation of Vietnam's agricultural development

The agricultural sector's growth

More than 30 years after “Economic renovation” (1986), the Vietnam’s agricultural sector has achieved a stable growth rate of 4.3% per year. The agricultural production value has grown at average annual rate of 4.06% between 1986 and 2016. Agriculture provides livelihoods for 9.53 million rural households and 60 million people (68.2% of the population), contributes more than 16% of GDP to the economy. Especially, despite of the macroeconomic difficulties after the global financial crisis in 2008, agriculture and rural areas have still maintained a relatively stable growth rate and ensured the economy’s balance. While other economic sectors have been affected by the economic recession, the agricultural sector has overcome many difficulties and achieved successes with the average growth rate of 2011-2015 reaching 3,13%. This result is due to the agricultural restructuring program implemented on the basis of promoting the country and each province’s advantages associated with the domestic and export markets. After 3 years of agricultural restructuring program, agricultural production has maintained a good growth rate. Quality growth continued to improve, the share of value added in total manufacturing value increased from 57% in 2010 to 64.7% in 2013; 67.8% (2014) and about 68% (2015). The labor productivity of agriculture, forestry and fishery has nearly doubled from VND 16.3 million in 2010 to about VND 31 million in 2015. The income of rural people in 2015 increased about 2 times in comparison with 2010.



Source: Author synthesis based on GSO data

However, the growth rate of the industry has not been firmly established yet, and there are still many shortcomings and weaknesses of a fragmented, uncoordinated, low productivity and low quality agriculture in the context of increasingly intense competition. Viet Nam's agricultural growth has largely based on using natural resources. This causes negative impacts on the environment, increases pollution levels and weakens natural resources, thus adversely affecting agricultural development. For example, in 2016 Vietnam's agriculture has faced with a series of natural disasters due to climate change. Agricultural production was severely affected by the cold woes in the north, droughts in the Central Highlands, droughts and salinities in the Mekong Delta, floods in Central provinces. Therefore, in the GDP growth rate of for the whole economy in 2016, the agriculture, forestry and fishery sector only increased 1.36%, the lowest since 2011.

Of the growth rate of the whole economy (6.21%), the sector of agriculture, forestry and fishery went up by 1.36% in 2016. The growth rate in comparison with the previous year of the agriculture, forestry and fishery sector in some years was as follows: 4.23% in 2011; 2.92% in 2012; 2.63% in 2013; 3.44% in 2014; 2.41% in 2015. So, this was the lowest growth rate since 2011, contributed 0.22 percentage points to the general growth.

The point is that the growth outcomes of the agricultural sector have not made a significant change in the lives of farm households. The majority of Vietnamese farmers still have low income and insecure. Agricultural output growth is achieved by using as many inputs as possible with greater environmental costs. Vietnam's Agricultural production expands on the basis of increasing usage of land, fertilizers and chemicals and other natural resources. Agricultural growth is also accompanied by negative impacts on the environment such as deforestation, the destruction of fisheries resources, land degradation and water pollution. In other words, Vietnam's agricultural growth is relying heavily on labor, natural resources and chemicals in production.

Restructuring of agricultural sector

The agricultural structure has been moving in a positive direction, better suited to market demand. The economic structure evolved towards service and the industrial sector, while the proportion of the agriculture sector in total GDP decreased from 19.57% in 2011 to 16.32% in 2016. Growth was also pro-poor in the sense that the proportion of the population living on less than \$1.25 per day declined from 64% in 1993 to about 13% in 2008. According to the Viet Nam Living Standards Survey for 2010, about 14% of the population was living under the national poverty line set in 2010.

Table 1: Structure of sectors' GDP and contribution out of overall growth for the period 2011-2016

Year	Proportion of economic sectors in total GDP (%)				Economic sectors contribution to overall growth (%)			
	Agriculture	Industry	Service	Product tax minus product subsidies	Agriculture	Industry	Service	Product tax minus product subsidies
2011	19.57	32.24	36.73	11.46	0.78	2.44	2.76	0.26
2012	19.22	33.56	37.27	9.95	0.53	2.41	2.51	-0.19
2013	17.96	33.19	38.74	10.11	0.46	1.69	2.55	0.72
2014	17.70	33.21	39.04	10.05	0.59	2.13	2.36	0.90
2015	17.00	33.25	39.73	10.02	0.40	3.20	2.43	0.64
2016	16.32	32.72	40.92	10.04	0.22	2.59	2.67	0.73

Source: Author synthesis based on GSO data

In 2013, the agricultural restructuring program was implemented on the basis of bringing into full advantages of the whole country and each locality in association with the domestic market and export. As a result, agricultural production maintained a relatively high growth rate. Average income per hectare of farmland from VND 72.2 million (2011) increased to VND 84.5 million (2016). The structure of agricultural production in Vietnam has been transformed to follow up the market economy's direction, forming some large - scale regions such as rice production in the Red River Delta, Mekong River Delta, rubber industry in the South East, coffee industry in the Central Highlands, tea in the Northern Midlands and Mountains, vegetable and flower growing in Da Lat, fruits and aquaculture in the Mekong Delta... The livestock sector has made positive changes in application of technology and science, increase economic efficiency. The production value of the livestock sector in 2016 is relatively high at 5.4% compared to 2015, ensures stable income for farmers.

However, the overall picture shows that the restructuring of agro-forestry-fishery sector is slow efficiency because of unclear, unpredictable mechanism and agricultural development policies. The average land allocation policy applied has made agricultural land to be fragmentary for a long time. Land Law 2013 promulgated to promote the development of land market, maintain land use rights, land area per households, choice of crops, transfer and exchange to ensure equal access to land among rural people, but limit ability to accumulate land and hinder long-term investment. The farm size of Vietnamese agricultural households is the smallest in Southeast Asia and in the world, so it is difficult to implement mechanization, modernization and large scale production.

Export activities

After 30 years of innovation, agriculture contributed 18% - 35% of the country's export value. By 2015, Vietnam is the world's largest exporter of cashew nuts and black pepper, the second largest in terms of coffee and cassava, and the third largest in terms of rice and seafood. In the period of 2010 - 2015, although affected by the economic downturn, agriculture is still the only sector with an export surplus. It is noteworthy that amid difficulties faced in export markets, the export value of agricultural products did not fall but however climbed by US\$ 1.7 billion to approximately US\$ 32.1 billion, thanks to a timely shift to goods that there is still room for growth. The accelerated growth of the sector in the second half of 2016 had a significant contribution of such goods as seafood, fruit and vegetables in particular. The export value of major agricultural products reached US\$ 18.162 billion, an increase of 7.9% in compared with 2015; The value of seafood exports reached US\$ 6.89 billion, up 6.4% compared with 2015; The export value of main forest products reached US\$ 7.047 billion, an increase of 0.3% compared to 2015.

Up to now, Vietnam has had 10 items with a turnover of more than US\$ 1 billion, including rice, coffee, rubber, cashew, pepper, cassava, vegetables, shrimp, shark catfish and forest products. From a food importer, Vietnam has become a leading exporter of rice. A lot of Vietnam's agricultural products have appeared in many international markets. Central Institute for Economic Management - CIEM (2014) shows in their research that the productivity and competitiveness of each Vietnamese agricultural product are very different. Groups of products with high RCA ($RCA \geq 2.5$) are commodities which have competitive advantages and opportunities for market expansion when integrated such as rice, coffee, cashews, tea, pepper. Groups of products with low RCA ($1.0 \leq RCA \leq 2.5$) are commodities which have low production advantage, weak competitiveness, and strong potential impact by integration such as sugarcane, animal feed, milk, vegetable and fruit.

Table 2: Revealed Comparative Advantage index (RCA) of Vietnam agricultural exports

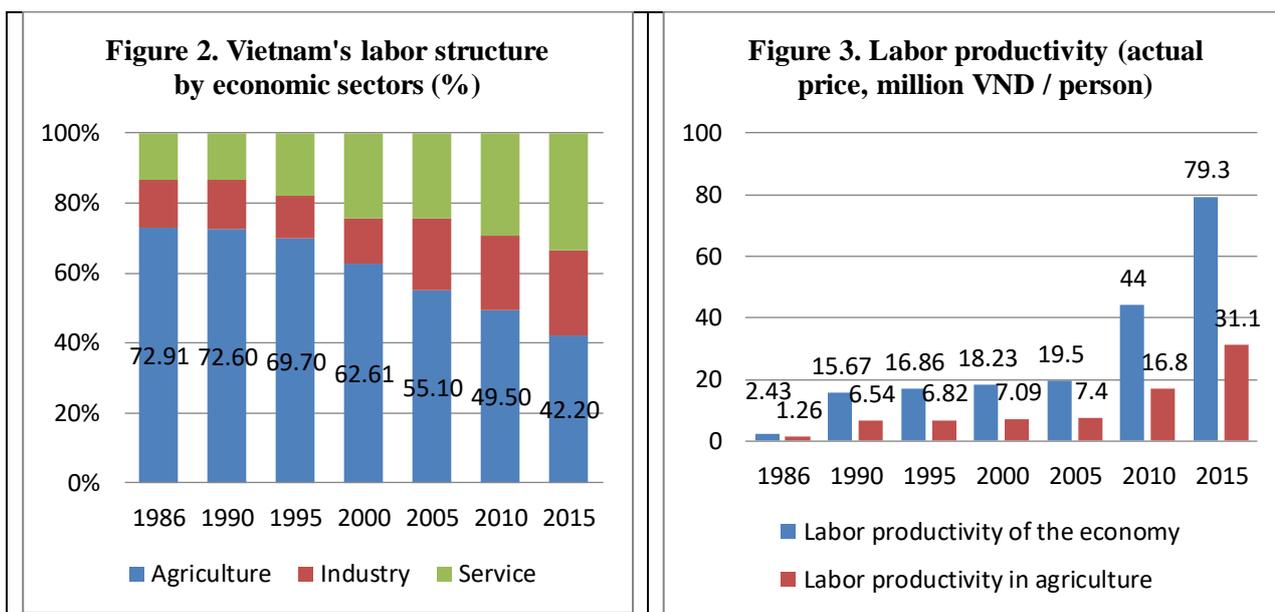
Year	Rice	Rubber	Coffee	Pepper	Tea	Vegetable and Fruit
2005	44,72	2,88	19,18	42,74	8,77	0,72
2006	36,55	3,69	24,87	42,82	8,00	1,09
2007	32,23	3,26	30,83	40,20	8,46	0,85
2008	34,88	3,09	24,57	37,05	6,97	0,89
2009	30,82	2,70	18,77	38,84	7,15	0,74
2010	33,46	3,62	15,90	38,43	6,52	0,80
2011	28,46	3,18	14,22	41,49	5,41	0,66
2012	16,97	1,93	15,12	26,69	3,08	0,42

Source: Central Institute for Economic Management (2014)

Vietnam's agriculture has a large production capacity but the cost of many products is high due to weak agricultural support industries and low labor productivity. In addition, commodities' competitiveness is not high due to constraints of quality, models and market approach. The majority of Vietnam's key exports are in semi-processed form without trademarks. The export market of agricultural products is still unstable, undiversified and dependent on some traditional markets. In addition, the constraints on forecasting capacity, state management agencies and enterprises are also major obstacles that lead to the fragmented, unsustainable export of agricultural products.

Labor structure and productivity

In 1986, agricultural labor accounted for a large proportion of the total workforce in the economy (72.91%). Over the past 30 years of economic reform, the proportion of agricultural workers has been reduced, in line with the set objectives of modernizing economic structure. However, the labor movement from agriculture to industry and services was slow. By 2015, agricultural workers still account for 42.20% out of total workforce in the country (Figure 2). The contribution of agriculture to the national GDP tends to decrease despite the big proportion of labor force.



Source: Author synthesis based on data of GSO and Ministry of Agriculture and Rural Development

In addition, agricultural productivity is still lower than that of industries and services (Figure 3). In 2016, the labor productivity of the economy at current prices reached VND 84.5 million/labor (equivalent to about US\$ 3,853/labor). Of which, the average labor productivity in the agriculture, forestry and fisheries sector was lowest at VND 32.9 million/labor while the industry and construction sector reached VND 112.0 million/labor and service sector reached VND 103.5 million/labor.

In recent years, the state has supported the agriculture sector to build concentrated and large-scale raw material areas in association with processing and marketing of agricultural products to meet the demand of international competition in the global value chain. The mechanism and policy of agricultural commodity development has been supplemented effectively in line with international standards and practices. They create facilitation, transparent and long-term stability to attract private sector and promote the competitiveness of enterprises linked with the value chain. As a result, agricultural productivity is expected to improve significantly in the coming time.

Opportunities and Challenges for the development of Vietnam's agriculture sector

Opportunities

Nowadays, in the context of deeply international economic integration, Vietnamese agriculture has opportunities as follows:

- Expanding agricultural export market

Vietnam currently has many important agricultural products in the world market, including leading commodities such as rice, coffee, pepper, cashew and tea with increasingly export value. Agriculture has maintained a trade surplus even in times of economic downturn due to the effects of the global crisis. Vietnam has relations with more than 200 countries and territories. It has signed trade agreements with 61 countries and most favored nation agreements with 68 countries. In the context of deeply integration into the international economy, especially in joining and implementing the commitments of bilateral and multilateral trade agreements, Vietnam agricultural products will have more opportunities to penetrate more into major international markets and to access modern science and technology. These opportunities coupled with the fundamental advantages that Vietnamese agriculture now possesses, will strengthen the competitiveness of agricultural products in integration.

- Increasing opportunities for attracting foreign investment, applying modern science and technology.

It can't be denied that integration has facilitated the strong attraction of foreign investment into Vietnam. FDI in the agricultural sector accounted for a mere 3.06% of FDI projects and only 1.35% of total FDI capital pledged nationwide despite the sector's remarkable contribution to the country's GDP. In 2016, the country has nearly 550 FDI projects in agriculture, with an average capital of FDI projects in agriculture about US\$ 6.7 million/project. Vietnam Ministry of Planning and Investment estimates that, the share of FDI in agriculture is still rising slightly from 2012 with 0.6%, 2013 with 0.8%, 2014 with 0.5%, with 2015 1% and more than 1.2% in 2016. Recently, many large corporations including Unilever, Nestle, METRO Cash & Carry Vietnam, Pepsi Co. Vietnam have been involved in the process of linking agricultural production. They aim to improve productivity, efficiency and sustainability in production. Foreign investment is associated with the development of new technologies, contributed greatly to increase productivity, efficiency in production, processing and trading of agricultural products.

- Increasing international competition - an important motivation for Vietnam agricultural development

Participating in integration process is to accept competition. Despite the risks and uncertainties of international trade, farmers have step by step become acquainted and gradually improve the competitiveness of Vietnamese agricultural products, not rely on subsidies of the government. Apart from the above-mentioned benefits, integration is also a great opportunity for better institutional, policy and governmental improvement. In addition, domestic enterprises must also change drastically to seize integration's opportunities. That will improve the competitiveness of agro-processing enterprises in particular and agricultural firms in general.

Challenges

- The low competitiveness of the agricultural sector.

Although the growth rate of the agricultural sector has recovered, it has not been firmly established yet, and it has exposed many shortcomings and weaknesses of a fragmented, uncoordinated, low productivity and low quality agriculture in the context of increasingly fierce competition. The labor force in agriculture now accounts for more than 42% of the country's labor force, but only accounts for more than 16% of GDP. That is why, although ranked third in value, Vietnam's agricultural productivity is at the bottom of the ranking in Southeast Asia. The small size of operation coupled with the high operating costs is the reason that the productivity of Vietnamese agriculture is always ranked at the bottom and poses a serious threat to the competitiveness of the whole industry.

The relationship between production and consumption between enterprises and farmers is not high, ineffective and unsustainable. Vietnam's agriculture is facing fierce competition in the world agricultural market. The market is not stable, undiversified and depends on some traditional markets with many risks. Countries tend to protect trade, especially Vietnam agricultural products traditional markets such as EU, USA and some other countries. Therefore, the scale and openness of the market and its increasing diversity will create challenges to the competitiveness of the agricultural sector.

- Land and water resources for agricultural production are declining

Vietnam's land and water resources are becoming increasingly scarce. Vietnam was abundant in water in the past. But now the water is increasingly exhausted and become a big challenge. This is not only due to the impact of climate change, environmental disasters, but also because of inadequate exploitation of water resources. In addition, deteriorating water quality is a particularly big concern. Agriculture has used up to 82% of fresh water in Vietnam. Water pollution in Vietnam's rivers is threatening the sustainability of water use in agriculture. In addition to the risk of drought, water resources are at risk of being affected by the increasing flow of river systems, which forces farmers to rely more on groundwater. Fisheries and coastal resources are also vulnerable to temperature changes, uncontrolled flooding and salt intrusion.

Vietnam has about 11.9 million farming households, of which 80% of households have a cultivated area of less than 1 hectare; only 20% cultivated more than 1 ha. In fact, farmers increasingly rely on small plots of land, using more and more chemical fertilizers to increase productivity, with little regard for long-term environmental impacts. Agricultural land continues to decline due to industrialization and urbanization. According to the Ministry of Agriculture and Rural Development, from 2000 onwards, the average annual agricultural land transferred to non-agricultural land is about 7,400 ha, accounting for about 1% of the total land area. In addition, the rural environment is not well managed. Pollution of wastewater, exhaust fumes in industrial zones and craft villages are directly degrading the environment, endangering the sustainable livelihood of the people and depletion of aquatic resources.

- *The pressure on employment of rural workers has been increasing.*

Due to population growth, Vietnam has annually at least 1.4 to 1.6 million people of working age are added to the labor force, of which 0.9 million jobs added in agricultural sector and rural areas. This creates enormous pressure on employment and the influx of rural-urban migrants. Aging labors and difficulties to keep up young talent in agriculture are other challenges. According to Vietnam's General Department of Population, from 2013, Vietnam officially entered the period of population aging and is still a parallel period of aging population and population, but the "gold population age" only will end until 2030 and then the level of aging continues to increase. Against this backdrop, agriculture is more severely impacted by the fact that agriculture is driven by urban, industry and service competition in attracting management talent as well as high quality human resources. Maintaining human resources in agriculture is a great challenge, especially for highly qualified people.

- *Climate change has been increasingly affecting Vietnamese agriculture.*

Vietnam is a vulnerable country to climate change. Agriculture is at great risk because agriculture production is heavily dependent on stable climatic conditions and agro-ecological conditions.

World Bank (2016) asserts that environmental consequences of Vietnam's agricultural success have ranged from deforestation and fishery resource depletion, to a growing incidence of land degradation and water pollution. Climate change is negatively affecting both crop and livestock systems in most regions of the country. It is expected to cause natural disasters, especially storms, floods and droughts, which are increasing in intensity, frequency and scale throughout the country, leading to scarcity and the shortage of agricultural land. In 2017, a number of hurricanes, the devastation of each storm, the cold and hot weather have appeared abnormally. Unusual manifestations of the weather cause a reversal of the traditional production structure. Governments need to manage resources more sustainably, including policies that encourage the accumulation of land into larger farming areas.

Some solutions to develop Vietnam's agricultural sector towards sustainability

In the coming time, the following solutions should be implemented to develop Vietnam's agricultural sector effectively in the context of the socialist-oriented market economy and international integration:

First, promote the commodity production of agriculture in the direction of a modern market economy, transfer to knowledge-based agricultural production, and economic efficiency in terms of scale and value chain. To continue building concentrated agricultural production areas in order to meet the domestic and international markets' demand for agricultural products as ensuring quantity and raising quality. To do so, land must be concentrated in various forms to promote the mechanization of production, improved quality, reduced costs in the value chain. In order to focus on land without changing land ownership, the government should develop a market for agricultural land rental, and develop related services such as information, registration and dispute resolution services, land acquisition... to improve the performance of this market. Promote the application of international standards of quality, the implementation of advanced technical process at all stages in the production and distribution. To attach great importance to good management of the organization, production, business and services for the development of commodity agriculture, avoiding the pursuit of profits but taking a slight look at the quality.

Second, innovating and developing organizational forms of production. Reorganize agricultural production by reforming forms of cooperation, strengthening linkages between the state, enterprises and households, forming associations, developing cooperatives, attracting deep participation of businesses. Vietnam should focus on developing forms of cooperation and link in the production and consumption of agricultural products in the value chain, connecting with the global consumption system. The Government should provide technical assistance and other assistance forms to help private enterprises, especially small and medium food processing enterprises and informal distribution networks, to improve their capacity in food safety management. Through sector associations, the Government may consider forming link clusters in sectors such as aquaculture, specialty rice, fruit, flowers, etc. Enhancing national or regional product branding - a combination of marketing, legal protection and quality control - can create strong growth in the domestic and international markets. In addition, it is necessary to promote the renewal and development of agricultural cooperatives and farms in the direction of the large-scale production and high-quality commodities, actively looking for information to participate in international competition; to perform stronger movement of labor from agriculture to other occupations in rural areas; to pay attention to increase labor productivity, reduce production cost; encouraging agricultural diversification by loosening restrictions on using land, building more flexible irrigation infrastructure in line with different crops. At the same time, it is necessary to strengthen veterinary services, monitor disease, improve capacity to enforce regulations on using agricultural chemicals, antibiotics, facilitate to access to capital for farmers and small businesses. .

Third, to increase research, transfer and application of science and technology to agricultural development, especially to step up high technologies application and linkages along the closed value chain from production to purchase, processing and marketing of products. Applying biotechnology and advanced production processes will create products with high quality, productivity, value added and environmental friendly. The Ministry of Science and Technology must concentrate resources to resolve problems of the production chain, especially seed, processes and distribution with three product groups: national, provinces and local products. Strengthen training human resources to improve the capacity, effectiveness and efficiency as the demand of industrialization and modernization.

Fourth, perfect mechanisms and policies to create new motivations for agricultural development, farmers and rural areas. To complete the state management system in agriculture from central to local on the basis of appropriate assignment and clearly define the functions, tasks and responsibilities of the heads; strengthening the role of the State under the guideline of "increasing tectonics, reducing directives", the decentralization and coordination of administrations; to create a better business environment to encourage businesses and farmers, especially facilitate access to land, capital and markets; to expand the production of highly competitive goods to meet the requirements of international integration and response to climate change, the government should invest in some public goods and services in the direction that agencies should only provide public services in areas where the market does not meet as well as promote farmers and private enterprises to invest and innovate in agricultural development.

Fifth, develop markets and international economic integration. The Ministry of Agriculture and Rural Development should promote agro-processing chains in combination with developing retail systems, building brands for key national products, local specialties associated with geographical indications. In addition, in cooperation with Ministry of Industry and Trade, Ministry of Foreign Affairs, localities, industry associations, enterprises and farmers to expand export markets, strengthen market forecasting capacities; promote trade promotion. The Government should assist enterprises about legal issues to minimize risks in international integration.

Sixth, developing infrastructure to meet the requirements of large-scale commodity production and strengthen adaptation capacity to climate change. Vietnam's agriculture is threatened by the risks of climate change as an increase in temperatures, rainfall variation and the frequency and intensity of extreme weather events. So that, the state needs to develop a climate change adaptation strategy, increase public investments in disaster prevention projects, and reduce negative environmental impacts. The Ministry of Agriculture and Rural Development should co-operate closely with localities to promote the forecasting system and early warning system and link them with agricultural advisory services. The state should improve the managerial effectiveness of water resources and irrigation system by strengthening community monitoring of local people; To upgrade essential infrastructure systems in rural and mountainous areas to create favorable conditions for socio-economic development and integrate natural disaster prevention activities into socio-economic development plans of localities.

CONCLUSION

Since economic renovation 1986, Vietnam's agriculture has had a strong and stable development for a long time. The great role of agriculture as the "pillar" of growth, poverty reduction, food security and export is undeniable. Vietnam's agriculture has not only provided a large volume of agricultural commodities to the domestic and international markets, but also become one of the world's leading exporters of agricultural commodities such as rice, coffee, tea, pepper, etc... However, beside of these achievements, this sector has been facing many difficulties and challenges such as poor quality of agricultural products, weak competitiveness, low productivity, small production scale, low add value, unstable and risk markets. Therefore, research shows the necessary solutions for agriculture such as boosting the application of science and technology, increasing the linkage in the closed value chain, continuing to building infrastructure, developing products with comparative advantages and competitiveness, diversifying domestic and export markets; investing in high quality human resources. These are the required solutions to ensure the sustainable development of Vietnam agricultural sector in the future.

References

- Global Investment & Business Center. (2015). *Vietnam Business and Investment Opportunities Yearbook, Volume 1 Strategic, Practical Information and Contracts*, International Business Publications, Washington D.C, USA.
- Bhandari, B.R., Senoussi, A., Dumoulin, E.D., and Lebert, A. (1993). *Spray drying of concentrated fruit juices. Drying Technology*. 11(5): 1081–1092.
- Chu Khoi. (2016). *Struggling to invest in agriculture*, *Vietnamese Economic Times*, N 45, February 2016.
- Central Institute for Economic Management. (2014). *Report: Structure and restructuring of Vietnam's agriculture in the last 10 years*. Hanoi.
- Food and Agriculture Organization of the United Nations, *Viet Nam at a glance*, accessed from <http://www.fao.org/vietnam/fao-in-viet-nam/viet-nam-at-a-glance/en/>
- General Statistical Office of Vietnam. (2017). *Statistical Year Books from 2000 to 2016*, Statistics Publishing House, Hanoi.
- Mahul O and C.J. Stutley. (2010). *Government Support to Agricultural Insurance Challenges and Options for Developing Countries*, World Bank Publishing, Washington D.C.
- Marsh S.P., MacAulay T.G. and Hung P.V. (eds) (2007). *Agricultural development and land policy Vietnam* Ministry of Natural Resources and Environment. (2016). *Updated Scenarios for Climate Change and Sea Water for Vietnam*, accessed from <http://chuyentrang.monre.gov.vn/ngaykhituongthegioi/dien-bien-kttv-viet-nam/capnhat-kich-ban-bien-doi-khi-hau-va-nuoc-bien-dang-cho-vietnam.html>

- Pham Tat Thang. (2017). *Climate Change and Economic Growth*, accessed from <http://www.tapchiconsan.org.vn/Home/NghiencuuTraodoi/2017/42846/Bien-doi-khi-hau-va-tang-truong-kinh-te.aspx>.
- UNDP, Ministry of Planning and Investment of Vietnam. (2010). *Promoting Agricultural Productivity and Rural Income in Viet Nam: Lessons from Regional Experiences (Support for the Development of Business Development Strategy socio-economic development in the period 2011 - 2020)*, Hanoi.
- Vietnam Ministry of Agriculture and Rural Development. (2015). *Documents for the 5-year review conference (2010 - 2015) to implement the national target program on building new rural areas*, December 8, 2015.
- Vietnam Ministry of Agriculture and Rural Development. (2016). *Report on the implementation of the 2016 plan on Agriculture and Rural Development sector in Vietnam: policy briefs*. ACIAR Monograph No. 126, 72p.
- World Bank. (2003). *World Development Report 2003 "Sustainable Development in a Dynamic World: Transforming Institutions, Growth and Quality of Life"*, Oxford University Press for the World Bank.
- World Bank. (2016). *Vietnam Development Report 2016 "Agricultural transformation in Vietnam: increasing value, reducing input"*, Hong Duc Publishing House, Hanoi.

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