

VIETNAM ORGANIC AGRICULTURE TOWARD SUSTAINABLE CONSUMPTION AND PRODUCTION

Bach Tan Sinh¹

Vietnam Institute of Science, Technology and Innovation

Abstract:

The trend of organic agriculture formation and development is happening very fast not only in developed countries but also in developing countries including Vietnam. In Vietnam, there have been many studies on sustainable industry towards consumption and sustainable production from economic and ecological aspects. However, there is very little research on organic agriculture especially from the perspective of science, technology, and innovation. This paper provides an initial picture of the status, challenges, and opportunities of organic agriculture, analyzing the policies and institutions that promote organic agriculture from the approach of ecological innovation with the principle Product cycle and value chain of agricultural products. Through the in-depth study of the case of Viet Lien Investment and Trading Limited Company, the paper offers some lessons learned related to the philosophy and goals of Viet Lien Company operation. The paper also provided some recommendations concerning the development of organic agriculture toward sustainable consumption and Production.

Keywords: Sustainable agriculture; Organic agriculture; Eco-innovation.

Code: 19100801

1. The sustainable agriculture toward sustainable consumption and production - concept and its interpretation in Vietnam

There has been a number of definitions on sustainable agriculture. The broadly accepted definition of sustainable agriculture, from a biological perspective, has been proposed by the Consultative Group on International Agricultural Research (CGIAR) as “Sustainable agriculture involves the successful management of resources for agriculture to satisfy changing human needs, while maintaining or enhancing the quality of the environment and conserving natural resources” (Dumanski, J, at al. 1998). For him, this is practical approach to sustainability since it recognizes the legitimate use of natural and manmade resources for satisfaction of human needs, but it cautions against the exploitation of these resources in a manner which would degrade the quality and potential of the resources on which production depends. It also recognizes that human needs change and

¹ Author's contact email address: sinhbt@gmail.com

therefore the systems of production also must change. In addition, he argues that to best achieve these objectives, sustainable agricultural systems must always be in a position to respond and capture the opportunities provided by changing markets, technologies, global environmental conditions and that the foundation for this flexibility and resilience is based on maintenance of natural resource and environmental quality. This leads to the concept of sustainability as opportunity, which can be identified as ensuring that the choices for future production systems are not reduced by decisions made in the present. The view of sustainability is not based on overcoming constraints, but rather as a process to capture concomitant economic and environmental opportunities.

In this paper, the concept of sustainable agriculture is interpreted more to what is called organic agriculture or eco-agriculture. Organic agriculture is a production system that allows the optimal exploitation of resources such as soil, energy, nutrients, biological processes to take place in nature with the most appropriate management method. The aim is to create products that meet the requirements of food hygiene and safety, and at the same time, ensure the environmental, social and economic sustainable production system. By this definition, organic agriculture can also be understood as ecological agriculture. Thus, the term “organic” not only refers to the type of nutrition provided to plants *but is expanded as a perspective, in which sustainability is the key* (highlighted by the author) (Nguyen Van Bo and Ngo Doan Dam 2017). According to Dumanski 1998, “the sustainability that leaves future generations at least the opportunities we have”. This is a very practical perspective, ensuring that total assets in four forms (natural assets, man-made assets, human beings and society) are always preserved during the development process. Unfortunately, we have been fully exploiting the resources, there is almost no opportunity for the next generation.

The serious impacts of current consumption and production trends across the world requires the need for a transition towards Sustainable Consumption and Production (SCP), as a key element for sustainable development. The widely used and more recent definition is provided by UNEP: “SCP is a holistic approach to minimise the negative environmental impacts from consumption and production systems while promoting quality of life for all”. Regardless of definitions, the underlying principles of SCP should be the followings (UNEP, 2011):

- (1) Improving the quality of life without increasing environmental degradation and without compromising the resource needs of future generations.

(2) Decoupling economic growth from environmental degradation by:

- Reducing material/energy intensity of current economic activities and reducing emissions and waste from extraction, production, consumption and disposal;
- Promoting a shift of consumption patterns towards groups of goods and services with lower energy and material intensity without compromising quality of life.

(3) Applying life-cycle thinking which considers the impacts from all life-cycle stages of the production and consumption process.

The SCP for development approach developed by UNEP with the life-cycle thinking provide a useful and practical way to assess the sustainability of Agriculture. In addition, SCP is addressing one of the 17 sustainable development goals of the Agenda 2030 - the Goal number 12 “ensure sustainable consumption and production patterns”.

2. Challenges and opportunities Vietnam faces in term of organic agriculture

2.1. Challenges

Despite the difficult situation, affected by the financial crisis and global economic recession during late 1980s, Vietnam's economy still ensures a relatively rapid growth of 5-8% in the past 20 years. As a result, GDP has exceeded 2.500 USD/person, ensuring Vietnam entered the group of middle-income countries. Rapid growth is also reflected in the manufacturing of products and services. In the field of agriculture, forestry and fisheries, Vietnamese branded products have quickly dominated the international market, although the competition is quite fierce. Many agricultural products have a production and export scale exceeding US\$ 1 billion/year (*MPI, 2012*). Overall, with the dynamic economic development and innovative policies implemented, Vietnam's Global Competitiveness Index (GCI) according to the World Economic Forum (WEF) in 2010 has increased sharply, among 67 most powerful global competing countries, compared with 141 other nations and economies in the world.

However, when looking deeply into the development of the past years, it can be seen that besides great achievements, there are still many limitations and weaknesses. The highest focus is still on the issue of low quality of growth, low macroeconomic stability. Facing the challenges of integration and global climate change, Vietnam's economy is facing significant risks, affecting the quantity, quality and results of rapid growth, due to economic, social and environmental un-sustainability.

In terms of the criteria of sustainable development, the rate of material consumption is still large, making the rate of added value of industry and economy become less. In production consumption, due to priority given to increase number of the products, many industries and localities have adopted outdated technologies, thereby reducing production efficiency and the competitiveness of the economy, consuming a large amount of resources, energy and discharged a lot of waste goes into environment.

Projects on manufacturing energy-saving products, or on importing goods, raw materials, machinery, equipment for manufacturing energy-efficient products have been not listed as those projects receiving investment promotion incentives stipulated in the 2005 Investment Law and Decree No 108/2006/ND-CP providing guidance in implementing the Law. The industries that manufacture and import energy-saving products are not entitled to import tax exemption or import policies and preferential policies on post-investment interest rate support or credit guarantees. Other solutions such as guiding reasonable consumption, restructuring production, changing products, etc. have not been studied and applied.

The environment in many rural areas is increasingly polluted by domestic waste, animal husbandry and agricultural medicine. The suburban areas, industrial parks and trade villages are seriously polluted. While only 51% of households have hygienic latrines; 74.7% of households have a bathroom; 38% of households have hygienic breeding areas; 12.2% of communes have drainage works; 28.4% of communes organized waste collection. Clean water has been the most heavily invested sector in recent years, but up to now, only 70% of the population has access to hygienic drinking water (of which about 30% of the population has access to water that meets the standards of the Ministry of Health). Most rural production and business establishments do not meet environmental standards (*MPI, 2012*).

Vietnam is an agricultural country, the land is crowded with people and the area of agricultural land per capita is declining, from 0.13 ha in 1980 to about 0.1 ha today. That is not to mention, in the concentrated agricultural production areas such as the Red River Delta, only nearly 400m²/person (*MPI, 2012*).

Looking back at history, Vietnam just started using chemical fertilizers in some French plantations at the beginning of the last century and most farmers' fields only applied manure, some green manure like mulberry, fill bar. Agricultural residues are mainly used for roofing and fuel needs. Chemical fertilizers were only really widely used after the reunification of the country (1975). However, the speed of using fertilizer increased too fast. In 2012, Vietnam used nearly 12 million tons of fertilizers of all kinds

and nearly half a billion USD for plant protection drugs. One thing to worry about is that the agricultural extension of fertilizer has not been paid enough attention, so the use of fertilizers is arbitrary, unbalanced, not the right trees and the right soil so the coefficient of fertilizer use is very low. Currently, the nitrogen using ratio is only above 40%, the potassium fertilizer is about 55-60%. But phosphate is much lower. Thus, every year, Vietnam has lost nearly half of its fertilizer due to runoff, volatilization or compaction. This harm not only causes material damage due to waste, but also causes other harms such as vulnerability to pests, spilled tires, reduced product quality or enrichment of water sources. Organic use itself has the potential to cause environmental pollution such as heavy metal accumulation, toxic microorganisms (worm eggs, ecoli,...) or eutrophication of water resources. Many people still believe that only chemical nitrogen fertilizer is the source of nitrate pollution (*Nguyen Van Bo and Ngo Doan Dam, 2017*).

2.2. Opportunities

The overuse of fertilizers and pesticides as mentioned above has been causing environmental pollution and reducing the quality of agricultural products. Therefore, the development of sustainable ecological agriculture is an indispensable trend to improve product quality and minimize negative impacts on community health and living environment. For Vietnam, in order to successfully switch from self-sufficient production to an export-oriented commodity production industry, food safety issues as well as quality improvement, meeting the requirements of the domestic market and international will be increasingly urgent.

Opportunities for the development of organic agriculture must also include the rising domestic and international demand for safe products. Therefore, some organic products have a strong foothold in the market such as clean vegetables, organic tea, clean meat,... However, it can be said that Vietnam's organic agriculture still accounts for an unreasonable proportion compared to the total agricultural production. In 2012, Vietnam's export turnover of agricultural products reached US\$ 27.5 billion through many leading products in the world group such as rice, rubber, coffee, pepper, cashew, tea, etc. However, most of the agricultural products Vietnam exports are in raw form, unprocessed and of low quality, so the added value is very low.

In the near future, in Vietnam's agricultural development strategy, ensuring national food security, raising production efficiency and increasing people's income are top priority. However, there is a tendency to reduce the rice cultivated area, reduce rice export to grow more quality rice varieties, raise the percentage of specialty and indigenous seeds with quality. Vietnam

cannot keep exporting rice for less than 500USD, while many cities import rice for more than 1.000USD. And so, the opportunity to return to organic farming with some rice varieties is present. With the natural and social conditions of Vietnam, organic agriculture has opportunities in the industry of vegetables, fruits, alpine tea, spice plants, medicinal plants, and aquatic products according to the mode of ecological farming (*Nguyen Van Bo and Ngo Doan Dam. 2017*).

A very important factor is the increased interest of the Government and the people in organic agriculture. As proof, on May 22nd, 2013 Vietnam Organic Agriculture Association was officially established. The Ministry of Agriculture and Rural Development (MARD) issued Sector Standard 10 TCN 602-2006: Organic - Standard for Organic Agriculture Production and Processing on December 29th, 2006 as an important legal basis. Many businesses have boldly invested in the production, processing and export of organic agricultural products.

3. Policy and institutional framework promoting organic agriculture toward sustainable consumption and production

3.1. Key strategies/policies and laws promoting organic agriculture toward SCP in Vietnam

Key strategies/policies and laws	Key Associated Decrees, Circulars & Decisions	Lead agency	Remarks/Comments
Environmental Protection Law		MONRE	<p>Article 44. Production and consumption of new environmental products</p> <ul style="list-style-type: none"> - Agencies, organizations, households and individuals are responsible for participating in the production and consumption of environmentally friendly products and services. - Heads of agencies and units using the state budget are responsible for giving priority to using eco-friendly products and services certified with eco-labels as prescribed by law. - The Ministry of Natural Resources and Environment (MONRE) shall assume the prime responsibility and coordinate with the information and communication agencies in introducing and promoting environmentally friendly products and services.
	Decree No. 19/2015/	MONRE	<p>Article 46. Subsidies on products and services of environmental protection</p>

Key strategies/policies and laws	Key Associated Decrees, Circulars & Decisions	Lead agency	Remarks/Comments
	ND-CP detailing the implementation of a number of articles of the Law on Environmental Protection		<p>The project owner carries out activities and provides eco-friendly products which are labeled by MONRE; products from recycling and waste treatment activities certified by competent state agencies, shall be entitled to price subsidies under the provisions of law on production and supply of public products and services.</p> <p>Article 47. Consumption support for products</p> <p>Heads of agencies and units using the state budget shall prioritize public procurement of environmentally-friendly products, which are labeled with Vietnam's Green Label by the MONRE; products from recycling and waste treatment activities certified by competent state agencies when purchasing such products.</p>
National strategy for Green Growth	Decision No 1393/QĐ-TTg 25 th September 2012 of the Prime Minister approving the National Strategy on green growth		<ul style="list-style-type: none"> - Promote eco-labeling and dissemination of information about eco-friendly products to the society. Develop a roadmap from now to 2020 to apply green procurement. - To study and promulgate regulations on green public spending, in which investment and recurrent spending of the state budget must prioritize procurement and use of eco-labeled goods and recyclable goods.

3.2. National key policies promoting ecological value cycles

Key policies	Key Associated Decrees, Circulars & Decisions	Lead agency	Remarks/Comments
Policies promoting village/farming households	Support to apply Good Agricultural Production (GAP)	MARD, MOST and MOH	<ul style="list-style-type: none"> - Currently, there has not been any organization in the country certifying organic products; - The state budget mainly supports inputs in the production process, not yet supported in the chain from production, certification to product consumption in the market.

	<p>Decision No 01/2012/QD-TTg dated 09th January 2012 of the Prime Minister on the policy supports the application of Good Agricultural Production Practices in agriculture, forestry and fisheries</p>		<ul style="list-style-type: none"> - The State budget invests 100% of the fund for basic surveys, identifying concentrated production areas applying VietGAP approved by the competent authorities. - State budget support: No more than 50% of total investment capital for construction and renovation of infrastructure of concentrated production areas; - Support one-time funding for hiring evaluation organizations to be granted safety product certificates; - Support training and training in the application of VietGAP in production and preliminary processing of safe products.
<p>Policies promoting cooperatives</p>	<p>Building and developing models of safe agricultural supply chains</p> <p>Decision No. 3073/QD-BNN-QLCL dated December 27th, 2013 of the MARD regulating the development and development of safe models of food supply chains for safe agricultural, forestry and fishery products nationwide.</p> <p>Safe food supply chain (National strategy for food safety during 2011-2020, Decision No. 20/QD-TTg dated January 4th, 2012)</p>	<p>Provincial PPC</p>	<ul style="list-style-type: none"> - There is a process and mechanism for supervising food safety throughout the product chain and has been inspected by competent authorities to ensure food safety requirements at all stages of production and business in the food supply chain (The initial production facilities of the chain do not require VietGAP certification, equivalent certificates or food safety eligibility); - Products sold at business establishments to individuals or organizations directly subject to supervision by functional agencies, which have been sampled and tested at laboratories designated by the MARD, and meet the current regulations and technical regulations on food safety; - The certifying body is Quality Management Agency for agricultural, forest and aquaculture products of provinces, cities or agencies assigned by the Department of Agriculture and Rural Development to manage the quality of food safety in agriculture, forestry and forestry. - Funds for inspection and

			<p>certification of establishments meeting food safety conditions shall comply with current regulations of the Ministry of Finance.</p> <ul style="list-style-type: none"> - There is no specific guidance and funding for initial support of certification fees for businesses, cooperatives, and households that are owners and managers of the entire supply chain.
	<p>Supporting policy for hi-tech zones and areas applying high technology</p> <p>Decision No. 575/QD-TTg dated May 4th, 2015 General planning of agricultural hi-tech zones and areas to 2020, orientation to 2030.</p> <p>Decision No. 1895/QD-TTg dated December 17th, 2012 of the Prime Minister on the Program of developing high-tech applications of agriculture under the National Program of high technology development till 2020</p>	<p>MOST and MARD</p>	<ul style="list-style-type: none"> - Exploiting the comparative advantage of natural, resources, economic and social conditions of each ecological region; - The hi-tech application agriculture zone is the technological centre for replication into high-tech applied agricultural production areas. - Maximize the investment in building high-tech agricultural zones and zones; - By 2020: Establishing a number of agricultural areas to apply high technology, focusing on the following subjects: Vegetables, flowers, coffee, tea, dragon fruit, milk cows, beef meat, beef, shrimp (salty, brackish); - Research and transfer of scientific and technological applications to high-tech application areas has not yet gone into the form of ordering and researching and transferring in conditions of adaptation to climate change and saltwater intrusion.
	<p>Support for land consolidation and innovation</p> <p>Decision No. 19-2016/NQ-CP dated 25th April 2016 on major tasks and solutions to improve the business</p>	<p>MONRE, MOST, MPI and MARD</p>	<ul style="list-style-type: none"> - MONRE is responsible for formulating policies to encourage concentration and accumulation of land for agricultural production under a large-scale concentration model. - MOST is responsible for the followings: + Establishment and development

	<p>environment, improve national competition in the two years 2016-2017, orientation to 2020.</p> <p>Decision No. 35/NQ-CP dated 16th May 2016 on support and development of enterprises to 2020</p>		<p>of national innovation system, innovation centers and technology incubators.</p> <p>+ Early implementation of the Scheme to support innovation start-up ecosystem after the Prime Minister approves it.</p> <p>- MPI is responsible for the followings:</p> <p>+ Reviewing and assessing the implementation and effectiveness of policies to support businesses, especially policies to support startups and businesses to innovate; propose measures to promote the implementation or addition of functions and tasks to the SME Development Fund, together with the National Technology Innovation Fund and private-sector funds in order to increase capital sources for startups, especially innovative businesses with high growth potential'</p> <p>+ Study the establishment, organization and operation of business incubator models, business support centers, accelerated innovation and start-up programs in the form of public-private partnership with the participation of domestic and foreign business associations, organizations.</p> <p>- MARD is responsible for the followings:</p> <p>+ Proposing mechanisms and policies to create favorable conditions for enterprises to access land and effectively use agricultural land;</p> <p>+ Review and evaluate the implementation and propose amendments and supplements to policies for enterprises investing in agriculture and rural areas.</p>
--	---	--	--

4. The status of Vietnam's organic agriculture

4.1. Production

Like many other countries in the world, Vietnamese farmers have known traditional organic farming for thousands of years, but organic agricultural production follows the current concept of the International Federation of Organic Agriculture Movements (IFOAM) are still new. IFOAM's conceptual organic agriculture was actually just started in Vietnam in the late 1990s with a few initiatives, mainly focused on the exploitation of natural products, such as flavor and vegetable oils, to export to some European countries.

According to IFOAM data released in 2012², Vietnam had 19,272 hectares of certified organic agricultural production (equivalent to 0.19% of the total cultivated area) in 2010, plus 11,650 hectares of organic/ecological aquaculture water surface and 2,565 ha of primary forest to exploit natural organic products. According to a report of the Vietnam Organic Agriculture Association, the total export value of Vietnam's organic products is estimated at US \$12-14 million. The organic products being exported are tea, shrimp, rice, cinnamon, anise and essential oil, but the quantity is still very limited.

4.2. Quality certification

Currently, Vietnam has no system of national standards and legal framework for production, certification and monitoring of quality of organic agricultural products. In early 2007, MARD issued Sector Standard No. 10 TCN602-2006 for organic products in Vietnam, but this standard is still very general and has not been specifically instructed for organic certification, to serve as a basis for production, processing, and other interested entities. Currently, there are 13 organizations in the country which are farmer groups and enterprises certified by international organizations meeting standards to export organic products to European and American countries (*MARD, 2007*).

4.3. Consumption

The domestic market for organic agricultural products is currently underdeveloped. There are no detailed statistics on the types and quantities of organic produce produced and consumed annually, but it is easy to see that organic vegetable products are for domestic consumption, while other

² FILB and IFOAM, 2012: The World Organic Agriculture: Statistics and emerging trends 2012.

organic products such as tea, shrimp, rice are for export. There is also no data on the category and quantity of organic products imported for domestic consumption, although there have been online report that the import and consumption of such products is increasing in Hanoi and Ho Chi Minh City.

4.4. Policy

Vietnam Government always strongly supports efforts to develop a sustainable and environmentally friendly agriculture, improving the productivity and competitiveness of agricultural products, including organic agriculture. However, there is a lack of specific policies on strategic orientation and national action plan to really promote the development of organic agricultural production. At the end of 2011, the Government allowed the establishment of the Vietnamese Consumers Association and from the beginning of 2012, the Association started to operate. In early 2012, the Prime Minister issued Decision No. 01/2012/QD-TTg on a number of policies to support the application of Good Agricultural Production Practices in agriculture, forestry and fisheries, in which have organic agriculture. Recently, MARD affirmed its stronger support for organic agriculture, through the approval of the Science and Technology Research Framework Program for Agriculture and Rural Development for the period 2013-2020, including organic agriculture.³

4.5. Agencies and organizations operating on organic agriculture

State agencies involved in the field of organic agriculture include: MARD, MOST, MONRE, Ministry of Education and Training. Most institutes and research organizations interested in organic agriculture are directly under MARD, with functions and tasks related to crops, livestock and fisheries, including the Vietnam Academy of Agricultural Sciences (VAAS) and other research institutes/centers, Animal Husbandry Institute, Research Institutes for Aquaculture (RIA1, RIA2, RIA3...) and agricultural universities.

4.6. Non-governmental organizations and businesses interested in organic agriculture

They include Vietnam Farmers Union (VNFU) for organic vegetables, ECOMART Company for organic tea; Organik Dalat for organic vegetables; Vien Phu Green Farm Enterprise for organic rice and organic

³ MARD (2013): Decision No. 1259/QD-BNN-KHCN of MARD approving the Program of scientific and technological research framework of Agriculture and Rural Development period 2013-2020.

shrimp farming models in Ca Mau province... There are very few international agencies and organizations supporting the development of NNHC in Vietnam, except Dan Dan's ADDA organization. Circuit, GTZ of Germany and more recently the Rural Development Agency of Korea.

4.7. Current status of research and training on organic agriculture

While Vietnam's agricultural production has achieved great achievements over the past time, the field of research and training to promote the development of organic agriculture has not received adequate attention and investment. Information on research and training/training on organic agriculture officially published in national and international journals is currently too limited. Research and development programs and projects have been carried out, mainly focusing on the selection of new plant varieties and animal breeds and the development of production techniques suitable to the plant varieties and animals; produce high quality and safe crop products based on GAP principles. The above research results are compiled and summarized to provide additional recommendations for organic agriculture production. The field of training and training in organic agriculture is in the same situation. Hanoi University of Agriculture recently established the Center for Organic Agriculture Promotion and Studies (COAPS), but the Center currently lacks operational resources.

5. Moving toward eco-innovation and organic agriculture for sustainable consumption and production

5.1. Eco-innovation for sustainable consumption and production

In the last two decades there has been a tremendous increase of academic works offering different formulations of eco-innovation (*F. Tietze et al., 2011*). The concept of eco-innovation have been commonly conceived as a means to achieve a more responsible and efficient use of resources and minimise the impact of human activity on the environment. Four essential concepts emerge from the literature on eco-innovation are the followings (*Mario Pensera, 2012*):

- Eco-innovation is mostly situated within the boundaries of Innovation Theory. The object of innovation is always a process, product, service or method;
- Most authors think that eco-innovation should be market-oriented. It should be a win-win process capable of preserving the environment and, at the same time, improving the competitiveness of firms;

- Though the concept of environmental impact is quite vaguely defined, all the definitions share the idea that human action is a burden on the environment that should be reduced;
- Finally, some authors advocate a broader view of eco-innovation including institutional and social aspects.

The paper uses the ASEIC's concept of Eco-innovation as “the development of innovative products, services, processes, or management which aims to optimize the use of energy and resources, and promote business opportunities while preventing or minimizing environmental impact” (ASEIC, 2012). In addition, the Eco-Innovation strategy developed by ASEIC with specific goals and methods within four specific types of potential innovations will be used to examine the case study in Vietnam concerning how eco-innovation has been used to achieve the sustainable consumption and production in agriculture in Vietnam. The figure below summarizes the Eco-innovation strategy:

Table 1. ASEIC Strategy of Eco-Innovation

Categories	Methods	Goals
Management	- Improve environmental awareness- Eco-innovation technology - Adopt Green SCM - Make public-private partnership - Contribute to local community	- Eco-innovation strategy - Create new business opportunities - Improve corporate social responsibility
Marketing	- Eco-design, Eco-labeling, Eco-packaging - Provide better market research	- New types of sales strategies - Eco-efficiency
System	- Workshop and internal communication scheme - Periodic sustainability report - Comprehensive and systematic management guidelines	- Education and training - Improve environmental transparency - Establish environmental management system
Process	- Process optimization - Good housekeeping - Waste management - Material flow analysis - Environmental performance indicators	- Cleaner production - Eco-efficiency - Compliance with environmental regulations

Source: ASEIC 2012

The concept and strategy of Eco-Innovation developed by ASEIC is used in analyzing experiences of Viet Lien Company in an effort to conduct eco-friendly/environmental innovation with the product life cycle and management of green supply chain for organic products, in order to form a new business and production model.

5.2. Case study of Viet Lien Company

5.2.1. Mission: For sustainable development

5.2.2. Philosophy for action

Respect for the natural law, take care of the health of the Earth, nurture diverse ecosystems, protect the living environment with Green acts of gratitude to Mother Earth on the principle of equality. Receiving “the best from mother earth” to offer to life, giving people the products “Natural clean good”.

5.2.3. Goal for action

Minimize negative impacts of production and business activities on society and the environment through organic agriculture and application of biotechnology to provide products that both ensure health care for users, producers as well as environmental protection and profitability for businesses.

Established on May 23rd, 2005, Viet Lien Trading and Investment Co., Ltd. (Viet Lien Company) is one of the pioneering enterprises in the field of researching, planting and processing vegetables, tubers and fruits following the principle of “Organic with Five No”: No chemical fertilizers, no chemical-based pesticides, no herbicides, no growth stimulants, and no genetic modification. As an enterprise operating in the field of organic agriculture and biotechnology, Viet Lien always puts itself in the position of consumers today to capture and understand the concerns that consumers always face the impact of everyday products on the health of themselves and their families.

After nearly 15 years of operation, research, production and market search, Viet Lien now has 4 safe vegetable gardens in Hanoi, Hung Yen and Phu Tho to a total area of nearly 30ha, serving the needs of clean vegetables for not only people in the local area but also for fresh vegetables in many shops and supermarkets in Hanoi. Currently, Viet Lien has provided thousands of people with safe organic food and created many quality organic products such as: Sinh Do tea, Guava leaf tea, Leafresh bio-dishwashing liquid,

organic oyster mushroom... Viet Lien has become a leader in the field of organic vegetable growing.

If anyone has ever been to Cu Khoi Ward, Long Bien District, it is not surprising to find the whole area like a clean vegetable cooperative. The most typical is Cu Khoi Guava. This is a delicious guava variety with high yield and good quality. Viet has Lien brought farmers together to bring this guava to a new level with high yield meeting VietGap standards and make it a trademark of Cu Khoi. So far, Cu Khoi Guava has been distributed widely in provinces such as Hai Phong, Quang Ninh, Thanh Hoa, Lang Son and has penetrated into Hapro Mart retail supermarket system in the inner Hanoi area.

Besides, Viet Lien officials always share their experiences, devotedly guide farmers in vegetable cultivation and cultivation techniques. New promising and economically viable varieties, such as moringa oleifera (a vegetable-PV), have been researched by Viet Lien and distributed seeds to most farmers in the region. Up to now, the cluster of Moringa Oleifera is growing strongly, promising prospects for Cu Khoi farmers. In particular, under the interest of local authorities, so far farmers from Cu Khoi have their own preliminary processing plants, along with Viet Lien to increase the value of products from their own gardens such as guava leaves, leaves Moringa Oleifera to consumers.

Not only researching and making organic products, Viet Lien also generates benefits to the vegetation and the land resources which are being depleted due to perennial chemical abuse, towards clean agriculture, clean industry, refining the essence of nature, serving the needs of the majority of consumers.

In the coming time, Viet Lien will make efforts to expand the model of organic vegetable cultivation, improve production, especially high-nutrient vegetable varieties such as moringa oleifera to serve consumers. In addition, Viet Lien will put clean vegetables into large distribution systems with a commitment to quality and the best price, so that Viet Lien's products can reach consumers of all classes.

With faith in its direction, Viet Lien has achieved certain success. Typically, the Gold Cup is a well-known brand trademark in 2013 for its products including Tue Vien Organic Vegetable, Do Sinh Vegetable and Do Sinh Tea, Leafresh dishwashing liquid - A great reward for a young and leading enterprise as Viet Lien Trade and Investment Co. Ltd.

5.3. The project of ecological innovation applies to guava products

In December 2014, Viet Lien implemented a project of Eco-Innovation funded by UNEP with a new business strategy for the period 2020-2030,

namely: (1) Providing guava leaf processing service into a value-added product for farmers, reaching a minimum of US \$ 20,000 in annual revenue; Target customers are guava planting farmers who follow the VIETGAP standard and organic in Cu Khoi area; (2) Promote eco-tourism and natural education in the guava planting area, aiming to achieve annual turnover of US\$ 500,000 annually after Payback. Target customers are domestic and foreign calendar travelers who prefer eco activities and weekend relaxation.

The changes Viet Lien Company have been supported in the eco-innovation project (see Figure 1).

(1) Proposing a new business model to the local government in Cu Khoi Ward, Long Bien District Hanoi City to determine the area for the pilot project implementation: The proposal was approved in June 2016 and allowed Viet Lien to pilot VIETGAP guava farming project on an area of 5 hectares with 89 households working in it.

(2) Establishing and developing a pilot technical center to transfer organic farming technology to farmers, change their farming practices in the direction of organic farming methods and support them in their early stages. They are considered essential for organic farming activities as well as conversion of the guava monoculture ecosystem to guava intercropping ecosystem to bring multidimensional effects not only from guava products (guava, guava leaves and guava branches) but also attract community ecotourism, thereby generating more income and autonomy in ecotourism business in farmers' guava gardens. Viet Lien will have more stable input of raw materials meeting environmental friendly standards.

(3) Operating the System of Products and Services revolves around biomass gasification stoves to help farmers take advantage of the biomass waste from guava tree to use for daily burning energy. This activity is coordinated with local authorities (district and village level) in the EAP project, funded by the US government and conducted by the Center for Creative Consultancy and Sustainable Development (CCS).

(4) Research and experimentally develop new products from guava tree: guava soap, guava vinegar, guava syrup and guava leaf tea.

(5) Developing an investment project to finance the expansion of a closed guava product business model from the period of growing guava tree planting to the harvesting, processing and consumption on the principle of product lifecycle to minimize waste generation, and adopt sustainable consumption and production (SCP).

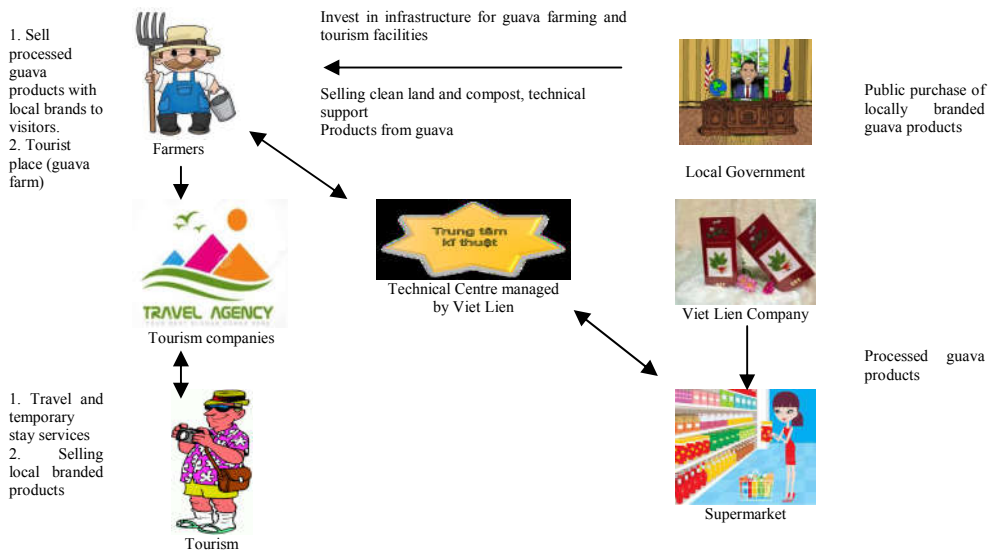


Figure 1. New business model - Plantation, production and consumption of guava

5.4. Lessons learned after implementing eco-innovation in Viet Lien Company

(1) A close relationship with local authorities and officials is needed to engage local governments in building a business ecosystem where local businesses operate.

(2) The project ecosystem should be developed (the project approach should be combined with a bottom-up approach focusing on technical support).

(3) Integration within the project: connecting businesses in different fields, as well as connecting farmers to Lien Viet businesses, supermarkets and finally customers in the extended value chain. In all of these steps of this value change. Apart from the involvement of local governments (through policies to promote green/environmentally-friendly production), there is a need for technology suppliers, green investors and banks as well as VietGAP quality standards certification bodies. In addition, it is necessary to raise the awareness of customers as well as change the social behavior - supporting the consumption of environmentally friendly products. In other words, it is necessary to strengthen communication to get the support of society in general and customers in particular on food hygiene and safety and habit of eco-product consumption (see Figure 2).

(4) According to ASEIC's eco-innovation classification (Table 1), at management level, Viet Lien Company has applied ecological innovation approaches with product lifecycle and chain management thinking. Green

supply of organic products, including guava products at Cu Block Ward, Long Bien District, Hanoi City. The objective of the eco-innovation activity is to create new business and production opportunities not only for Viet Lien but also for farmers in Cu Block Ward, as well as other partners in the value chain such as travel companies, shops including: supermarkets to create organic products from rancid (guava, guava soap, guava vinegar, guava syrup and guava tea) to meet VietCap standards, as well as temporary and eco-tourism services for domestic and foreign tourists. Through its operations throughout the value chain for organic products, Viet Lien not only raises its awareness and social responsibility about the importance of minimizing the impact of business on the environment as well as food safety and health protects of concerned partners in that value chain, such as farmers, product distributors and, importantly, consumers.

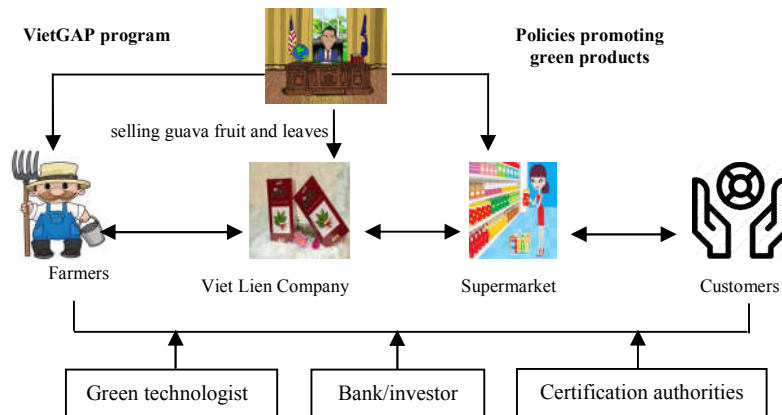


Figure 2. Stakeholders in the expanded value chain of Viet Lien

6. Lessons learned

6.1. Policies

- Planning and protecting land and water sources which is currently not or less polluted and also suitable for organic agricultural production towards commodity.
- Vietnam's organic agricultural production is still too small. Enterprises small in scope and little in quantity have received almost no attention and investment from the State, so it is not profitable and attractive to investors. That is not to mention the high level of market risk for this industry, so the State needs to issue policies to support production capital, incentives in land allocation and lease, and income tax exemption and reduction for organizations and individuals engaged in production, processing and consumption of organic agricultural

products. At the same time, for the first time, the organic agricultural production insurance fund may be needed.

- Most of Vietnam's potential organic products are located in areas with difficult transportation, unfavorable storage, temporary storage and processing conditions, so the State needs to support grassroots infrastructure investment. Especially infrastructure for processing organic fertilizers, bio-fertilizers, on-site microorganisms to reduce transportation costs.
- Strengthening the system of standards and regulations on production, processing and consumption, quality certification, inspection and supervision related to organic agriculture.
- Help businesses build brands, develop markets and promote products.
- Organic agricultural production also needs guaranteed inputs. Therefore, production and business enterprises related to organic fertilizers, biology, microorganisms, and biological plant protection products should also be supported in production. Of course, there is a need for linkages between organic agricultural enterprises and related fertilizer and plant protection enterprises.
- Enhancing communication to all stakeholders engaged in the value-added chains of organic agriculture from producers (farmers) to households, companies and cooperatives for production and consumption (supermarkets, subsidies) and consumers on the need to move towards environmentally (organic) products that are less harmful to people's health.

6.2. Strengthening the operating capacity of the Vietnam Consortium of Agriculture Organic Association

Vietnam Consortium of Agriculture Organic Association needs to be through successful model businesses, helping them to advertise and introduce products, thereby improving understanding and interest of society as a whole, especially the government agencies to the products of organic agriculture. The Association needs to build a network of domestic and foreign collaborators, NGOs to update information, support businesses in approaching the trend of developing organic agriculture of countries, new technologies and especially the procedures and standards set by each importing country.

7. Conclusion

For centuries, Vietnamese farmers have had a tradition of using organic fertilizer such as manure, green manure, north manure and agricultural

residues. However, due to the increasing pressure of the population, limited cultivation land... organic agriculture with thousands of years of history has been unable to guarantee national food security and thus, agriculture Vietnam has had to move from a soil-based, organic-based agriculture to a fertilizer-based (mostly inorganic) agriculture. It is chemical fertilizer as an important element of intensive farming that has contributed to the great achievements of agriculture over the past time, especially in the renovation period.

However, due to the emergence of new opportunities for organic agricultural products in the region and the world, the organic agriculture of Vietnam has begun to have conditions for development, despite many difficulties in the immediate future and challenge. Vietnam hopes that with the help of international organizations in sharing experiences, human resources development, training, providing technology and especially market access, together with strong support from the Government will promote Vietnam's organic agriculture to gradually develop towards sustainability in the entire product life cycle./.

REFERENCES

1. UNEP (2011). Paving the Way for Sustainable Consumption and Production - Towards a 10 Year Framework of Programmes on Sustainable Consumption and Production.
2. ASEIC (2012). ASEM Eco-Innovation Consulting Projects for SMEs Best Practices in Vietnam (2011). Seoul. Republic of Korea.
3. MPI (2012). *Studying and assessing the implementation of Vietnam's Agenda 21 and proposing a national action plan on sustainable development for 2011-2015*. Synthesis Report of Ministerial Research Project.
4. Ministry of Agriculture and Rural Development (2013). Decision No. 1259 QD-BNN-KHCN of the Minister of Agriculture and Rural Development approving the Program of scientific and technological research framework of Agriculture and Rural Development period 2013-2020.
5. Nguyen Van Bo and Ngo Doan Dam (2017). The current status of Viet Nam Organic Agriculture. Institute of Organic Agriculture Economics.
6. Dumanski, J at al. (1998). Performance Indicators for Sustainable Agriculture. Discussion Note. Rural Development Sector. The World Bank. Washington DC. 1998.
7. Tietze, F, Schiederig, T, Herstatt, C, (2011). *What is Green Innovation? A Quantitative Literature Review*, The XXII ISPIM Conference - Sustainability in Innovation: Innovation Management Challenges, Hamburg 12-15 June 2011.
8. FiLB and IFOAM (2012). The World Organic Agriculture: Statistics and emerging trends 2012.
9. Mario Pensa (2012). The Origins and Purpose of Eco-innovation. Global Environment.