

Copyright © 2017 by the European Union

Open Access chapter published by World Scientific Publishing Company and distributed under the terms of the Creative Commons Attribution Non-Commercial (CC BY-NC) 2.5 License.

Chapter 13

Sustainable Consumption and Production in Vietnam

N. T. Thong, D. H. Nguyen, P. T. N. Bich and L. T. M. Huong

13.1 Introduction: Vietnam's Economic Reforms and Impacts on the Environment

Vietnam is located on the eastern margin of the Indochinese peninsula, Southeast Asia. The country has a total area of over 332 km², along with about 1,000,000 km² of exclusive economic zone (EEZ), and a population of 90.6 million (est. 2014). Through the 1986 reform (Đổi Mới), shifting from a highly centralised planned-economy to a social-oriented market economy, Vietnam has enjoyed high growth of 6–7% per year. The country has been transformed from one of the poorest in the world, with per capita income below USD 100 in the early 1990s, to a lower middle-income country with per capita income of over USD 2,000 by the end of 2014. Over the last few decades, Vietnam has made a remarkable progress in poverty reduction. The percentage of people living in poverty dropped from almost 60% in the 1990s to less than 3% today [World Bank, 2015]. Thanks to the economic reform, Vietnam has achieved long-term progress in basic dimensions of human development. The Human Development Index (HDI) value of Vietnam increased from 0.439 in 1990 to 0.638 in 2013, positioning the country in the medium human development category in the

world [UNDP, 2013]. Over the last 30 years, life expectancy rose from 61.1 years in 1985 to 75.4 years in 2012, expected years of school from 8.7 to 11.9, and mean years at school from 4.4 to 5.5 [UNDP, 2013]. To date, Vietnam has achieved most and in some cases surpassed a number of the Millennium Development Goals (MDGs), particularly the goals on poverty reduction, education and gender equality [World Bank, 2015]. In the two decades from the 1990s to the 2000s, Vietnam has been one of the fastest developing economies due to rapid export growth and increased investment in the private sector. The country's accession to the World Trade Organisation (WTO) in January 2007 was a key milestone in the economic development path. With its rapid economic expansion and a significant population, Vietnam has become an increasingly important market, as well as gaining importance as a producer in its own right, especially in the garment, rice, pepper, and tea industries. Despite the economic success of the reforms, Vietnam is starting to show signs of falling productivity. The high growth rate of the past, driven by cheap input factors (i.e., low wages), has reached its limit. Symptoms of low competitiveness are poor public service delivery and high costs of doing business. The opaque business environment, gaps in SME access to finance, infrastructure bottlenecks, and the lack of skilled labour and weaknesses in innovation deter the Vietnam's private sector from developing to its full potential [SECO, 2013].

This rapid industrialisation and urbanisation have led to many environmental issues for Vietnam. The significant environmental challenges are deforestation and soil degradation, water pollution and overfishing, groundwater contamination, degrading environment in big cities, loss of biodiversity, air pollution, solid waste problems [The World Factbook CIA, 2015]. Soil degradation has been increasing and degraded land accounts for nearly 50% of the total land area of the country. The 'soil problems' were affected badly by leaching, erosion, degradation, poor fertility, salinisation, acidification, pollution, drought, desertification, inundation, organic reduction, landslide, erosion of river banks and coastline, and losing soil productivity for urbanisation. Regarding forest resources, in the decade from 1980–1990, Vietnam lost an average of 100,000 ha of forest annually for development of industrial zones, and hydropower and irrigation projects. However, since 1995, forest area has

increased as a result of forest rehabilitation and plantation programmes. By the end of 2006, forest area in Vietnam was 12.87 million ha, of which 10.41 million ha were natural forest and 2.46 million ha were plantation forest [FAO, 2009]. Vietnam's pollution is among the worst in the world. According to a survey undertaken in 2014 by Yale University, the Environment Performance Index put Vietnam 136th out of 178 nations [EPI, 2014]. The pollution problem has been increasing over the years, driven by industrialisation and urbanisation processes. Air quality, water, sanitation and resources, and biodiversity are the poorest criteria affecting environmental performance. Land for agricultural purposes has been used for construction projects, such as golf courses and new urban centres. The quality of soil faces problems such as erosion, exhaust fumes and pollution due to the use of diesel, and organic and microbiological substances from farming. The ongoing trend of migration from rural regions to cities has also created risks and deteriorated the quality of the environment [Tuoitrenews, 2012]. Furthermore, high exposure to climate change adds to the challenges for Vietnam to cope with environmental issues and natural catastrophes. The factors that obstruct the recovery of the economy also include weakening enterprises, insufficient policy measures and ineffective policy transmission channels. Vietnam needs to develop a concrete action plan to bolster its efforts to strengthen its climate change response and to ensure a climate-resilient future [World Bank, 2015].

Realising the urgent need to promote a shift toward more sustainable industrial development pathways and sustainable consumption and production (SCP) patterns, the Vietnamese government has paid special attention to the promotion of green growth. The government has approved the Vietnam Green Growth Strategy for the period 2011–2020, with a vision to 2050, as “a decisive tendency in sustainable economic development.”

The remainder of this chapter is structured as follows: firstly, it provides a detailed introduction of the Vietnamese economy and potential for greening of small- and medium-sized enterprises (SMEs). Secondly, policies for green growth and SCP are introduced, followed by an overview of international cooperation programmes for stimulating green growth. Two projects from the European Union's SWITCH-Asia Programme are highlighted as case studies. The conclusion provides an outlook and recommendations on how to advance green growth and SCP in Vietnam.

13.2 Vietnam's Economy and the Status of SMEs

13.2.1 *The economic structure of Vietnam*

Over the last decades, Vietnam's economic expansion was accompanied by a drastic shift in the composition of gross domestic product (GDP). The economic activities shifted away from agriculture toward services and manufacturing. Key industries in Vietnam currently include food processing, garments and apparel, machinery, mining, coal, steel, concrete, chemical fertilizers, glass, tyres, oil, and paper. National priority is given to application of high and clean technologies in order to promote the production value of these sectors to at least 20% growth per year and contribute at least 35% to the overall national production value [World Bank, 2015].

Vietnam has applied a market-oriented system but the stated-owned enterprise (SOE) is still at the heart of the economy (see Figure 13.1). The non-state enterprises are numerous but small; most are sole traders. Foreign direct investment (FDI) enterprises are extremely important for the Vietnamese economy. Although this block accounted for only 20% of GDP and created 24% of jobs, it contributed nearly 65% of export value for Vietnam in 2014 [FIA, 2015].

Since the Vietnamese government launched its opening policy, its exports have had the opportunity to expand. The traditional labour-intensive manufacturing exports, such as garments, footwear and furniture, continue to grow rapidly (see Table 13.1). Recent new exports, such as

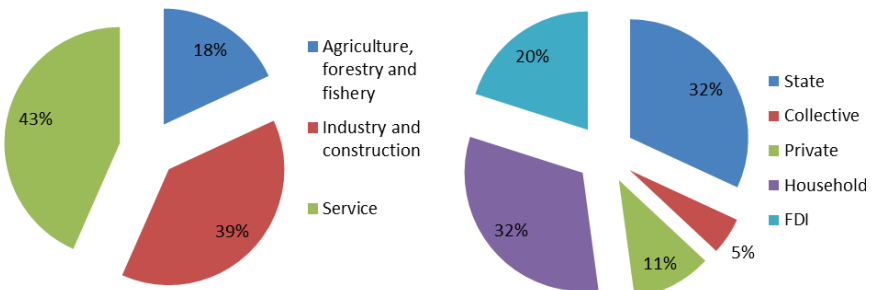


Figure 13.1: GDP structure of 2014 (USD 186.3 billion) by sector and ownership types

Source: GSO [2014].

Table 13.1: Key exported products of Vietnam in 2014 (USD billion) [ITC, 2015]

No.	Products	Exported Value	Trade Surplus
1	Electrical, electronic equipment	46.26	12.18
2	Footwear, gaiters, etc., parts thereof	13.76	12.69
3	Articles of apparel, accessories, not knitted/crocheted	11.53	8.52
4	Articles of apparel, accessories, knitted or crocheted	9.57	5.83
5	Furniture, lighting, signs, prefabricated buildings	6.69	5.78
6	Fish, crustacea, molluscs, aquatic invertebrates	4.96	0.41
7	Coffee, tea, mate, and spices	4.47	4.01
8	Leather, animal gut, harnesses, travel goods	2.84	2.65
9	Wood and articles of wood, wood charcoal	2.67	1.68
10	Edible fruit, nuts, peel of citrus fruit, melons	2.51	0.40
11	Rubber and related articles	2.33	0.91
12	Meat, fish and seafood food preparations	1.73	1.50
13	Other fabricated textile articles, sets, clothing	1.10	0.69
14	Salt, sulphur, earth, stone, plaster, lime, concrete	1.08	0.84

hi-tech and high-value products (cell phones, computers, electronics, and automobile parts), have also maintained rapid growth, and now represent the largest export share.

13.2.2 Major industries

Manufacturing sector: The manufacturing sector, including electronics, garments and textiles, and footwear, has a high export turnover, trade surplus, and represents labour-intensive sectors, of international interest given Vietnam's low labour costs. However, given the increasing average salary and changing economic structure among regions, the risk of local labour scarcity affects the competitiveness of all three sectors. Despite being a large exporter of garments and textiles, footwear, and electronic products in the world, Vietnam participated as a subcontractor without creating direct links with export markets; the value added is low. Most added value generated in export turnover is from FDI enterprises. The

electronic products and equipment sector currently has the highest export turnover and plays an important role in the economy. Thanks to the participation of many multinational electronics firms (e.g., Samsung, IBM, Canon), and increasing domestic demand for electronic products and services, the annual growth rate was 15–20% in the period 2008–2014; this sector reports the largest export turnover of USD 46 billion in 2014. This sector also attracts unskilled labour to work in assembling factories. According to data from 2012, more than 500 enterprises have over 200,000 direct workers with relatively high incomes and this number will continue to rise in coming years.

Footwear, garment and textile production is considered the most important industry of Vietnam in creating jobs. Annually, the garment and textile sector creates over 2 million jobs, and this number is expected to rise to 3 million in 2020 [MOIT, 2014]. In 2012, Vietnam had 4,654 garment and textile enterprises, of which 85% were SMEs, and 5% large enterprises with over 1,000 workers. Some 850 enterprises engage in manufacturing and exporting footwear, creating jobs for nearly 1 million direct workers and millions of indirect workers [MOIT, 2014]. In 2014, footwear, garment and textile export turnover reached USD 20.9 billion, ranking second after the electronic sector [GSO, 2014]. However, environmental impacts need to be considered, for instance waste discharge and air pollution.

Agriculture, Forestry, and Fisheries: Vietnam is well placed to develop agriculture, forestry, and fisheries due to the climate and diversified topographic conditions. Stretching from 23°23' to 8°34', the country has various climates: tropical, sub-tropical, semi-drought climate, and temperate zone. The total soil area used for agriculture, forest, and aquaculture activities in 2014 was 26.1 million ha, making up 78% of the total land area of Vietnam [GOS, 2014]. Plentiful rural labour and low labour cost are also advantageous; Vietnam has 36.1 million labourers aged 15 and above working in rural areas, of which 24.5 million work in agriculture, forestry, and fishery, making up 47.4% of Vietnam's labour force [GSO, 2014]. In the 1980s and before, Vietnam received international aid for national food requirements, but after only a few years of development, the country became an exporter of many agricultural products, such as rice, seafood, coffee, peppercorn, cashew nuts, and tea. Coffee is one of main agricultural products of Vietnam; in 2014, 630,000 ha was under cultivation for coffee cultivation, 1.74 million tonnes of coffee was produced, with an

export turnover of over USD 3.6 billion, ranking Vietnam the second largest coffee exporter in the world. Coffee is also a main income source for 540,000 farmer households, with more than 1.6 million labourers in remote areas, contributing considerably to famine elimination, poverty alleviation, and building the sustainable economy of Vietnam. Rice cultivation is a traditional agricultural practice in Vietnam. Rice production, processing, and export are fundamental to national food security, creating rural employment, and stabilising the national macro-economy. The country has 9.27 million households cultivating rice, making up 77.6% of total households with agricultural land [GSO, 2014]. The favourable climate and land conditions help Vietnam to develop rice production and rice exports. Vietnamese rice mainly meets domestic demand, with only about 25% exported [MOIT, 2014].

Vietnam ranks fourth in the world in terms of natural rubber yield and fifth in terms of natural rubber export value, with an export turnover in 2014 of USD 2.3 billion [ITC, 2015]. In 2014, Vietnam used 977,000 ha to produce 953,700 tonnes of rubber [GSO, 2014], mainly in the South-eastern region, the Central Highlands, and North Central Coast. Over 85% of Vietnamese rubber production is exported, of which 60–70% is destined for China. Natural rubber has been identified in the national orientation for sustainable development and facilitating hunger elimination and poverty reduction, however, the natural rubber industry in Vietnam is in the maturity stage of its life cycle. Rubber trees have been planted in the country over 116 years and its industry has a long history of development over 85 years [VTB, 2013].

Forest products (e.g., wood, wooden, and handicraft products) have the largest third export value among agricultural products. Apart from this economic value, the sector plays an important role in environmental protection, biodiversity and contributing to hunger elimination, and poverty reduction, especially for people in mountainous areas. In 2014, Vietnam had an export value for wood and wooden products of USD 2.8 billion in 2014, making up 1.9% of the world's market share, and an annual export growth rate of 25% [MOIT, 2014]. Vietnam has abundant raw materials such as bamboo, rattan, rush, palm leaf, gleicheniaceae, water hyacinth, and banana bark. The handicraft products are diversified, with plaited (baskets) and bamboo products being the most popular. In recent years, the number of workers in craft villages has decreased, by 10–35%. The

labour reduction in craft villages is mainly due to low salaries of workers in the arts and crafts sector, as well as weakness in management and the lack of solidarity of enterprises causing the instability of the market.

Fishery is one of the major export sectors of Vietnam. Seafood products were exported to 160 markets in the world, with a total estimated value of USD 7 billion in 2014, representing a 4.3% export share. The main aquatic exported products are shrimp, *Pangasius* catfish, and tuna. Vietnam has innate advantages to develop fisheries and aquaculture, due to its long coast, and many rivers, estuaries, and reservoirs. However, the sector currently faces challenges with fish stock overexploitation and environmental issues in aquaculture. The increasing domestic consumption and export demand have resulted in overexploitation of inshore fishery stocks. Although offshore fishery stock has been considered as under-exploited, the lack of intensive management may cause offshore fisheries to become increasingly over-exploited. In order to exploit the fisheries more sustainably, fisheries management needs to be improved. Some key solutions have been suggested: Integrated coastal zone management, fisheries management in inland, offshore and inshore areas, and diversified aquaculture development in brackish, marine, and freshwater areas. Inland fisheries are an important livelihood for many poor people. However, it is under threat from pollution due to agrochemicals and some flood control projects. To ensure the sustainability of inland fisheries, many issues need to be considered, for instance, assessment the important of inland fisheries, identification of appropriate management measures, such as use of appropriate gear and closed-fishing seasons in selected areas, establishment of sanctuaries to protect key breeding areas and nurturing habitat, etc. Although Vietnam is one of the largest seafood exporters in the world, the sector is less well integrated further down the value chain.

Service Sector — Tourism: The service sector is increasingly important to the Vietnamese economy. In 2014, the services sector contributed an export value of USD 11 billion [ITC, 2015], in which tourism is the main contributor. The sector brought a turnover export value of USD 7.3 billion to 2014's GDP, with an annual growth rate of 17.8%. The number of international visitors in Vietnam in 2014 was 7.9 million, within which tourists from China, Korea, Japan, and US dominate. In 2013, the tourism employed 570,000 direct workers out of 1.8 million, representing 2.5% of the national labour force [ITC, 2015]. It is estimated, by

2020 the tourism sector will employ 870,000 direct workers. Vietnam has enormous tourism potential, particularly ecotourism, due to the spectacular landscape, tropical climate, rich natural resources, long coastline, rich history, and diverse culture. The country is considered one of 16 nations in the world with the highest biodiversity in a wide range of ecosystems [Hong *et al.*, 2002], a very favourable condition for ecotourism development. Vietnam is both a “cradle” of native species and a transitional area of organisms from the biota of the north to the south. In addition, due to its diversity of topography and climatic conditions, Vietnam is rich in floral and faunal species, of which 10% and 11%, respectively, are endemic [Hong *et al.*, 2002]. Vietnam can develop various ecotourism products based on the coastal ecosystem, the limestone ecosystem and the tropical fruit garden. Vietnam is also rich in cultural identity, with 54 peoples whose indigenous knowledge could be made accessible to visitors. Although having much potential for tourism development, the sector is not competitive. The competitiveness indicator of Vietnamese tourism in 2015 ranked 75th out of 141 countries according to the assessment of the World Economic Forum [2015]. In addition, tourism has brought great benefits to the economy, but it has also contributed to environmental degradation, especially biodiversity deterioration. Fully aware of the significance of ecotourism, the government of Vietnam has prioritised ecotourism in its strategy for tourism development to ensure both sustainability and economic benefits. Though ecotourism of Vietnam is nascent, it is expected to grow strongly through support from government and international organisations. Ecotourism needs investment in human resources (tourist guides, tour operators), management, and fundamental research and planning focused on the natural environment of the proposed ecotourism sites.

13.2.3 *Small- and Medium-sized Enterprises*

SMEs have emerged as a dynamic force in the development of the Vietnamese economy since the launching of the reform process in 1986. According to GSO [2014], the number of non-state enterprises in December 2013 represented 96.4% of total enterprises, creating around 60% of jobs, owning nearly 50% of capital (see Table 13.2) and contributing 48% of GDP in 2014. Of this GDP contribution, state enterprises and

Table 13.2: Structure of acting enterprises as of 31 December, 2013 [GSO, 2014]

	Number of Enterprises		Number of Employees		Capital	
	Enterprise	%	Thousd.	%	USD Bills	%
State owned	3,198	0.8	1,541	13.4	257.7	30.9
Central	1,789	0.5	1,155	10.1	235.3	28.3
Local	1,409	0.4	386	3.4	22.3	2.6
Non-state	359,794	96.4	6,855	59.8	416.1	49.9
Private	49,203	13.2	503	4.4	14.5	1.7
Others	310,591	83.2	6,351	55.4	401.7	48.2
FDI	10,220	2.7	3,069	26.8	159.3	19.1
100% foreign	8,632	2.3	2,783	24.3	118.0	14.2
Joint-venture	1,588	0.4	286	2.5	41.2	4.9
Total	373,212	100.0	11,464.4	100.0	833.1	100.0

foreign-investment companies accounted for respectively 31.9% and 20.1% in 2014. Most non-state enterprises are SMEs and have grown rapidly during the past decade.

SMEs are the driver of growth for Vietnam economy and the promotion of SMEs has received strong support from the government. Action plans to improve the business sector have been actively pursued and the priority of private sector and enterprise development is clearly reflected in the socio-economic development strategy. SME promotion, particularly in rural areas, is also regularly referred to as a priority area of the government to underpin the economic growth process. The Vietnamese government has introduced a range of legislation to shore up the private sector's economic success and growth, from a surge in foreign funds, technical assistance and investment. Two groups of interrelated factors, namely market-oriented and business environment reforms, and pro-SMEs policies and programmes [Cuong *et al.*, 2008] have supported the rapid development of SMEs, especially the number of enterprises.

Despite the impressive achievement during the past decades, Vietnam's SMEs remain weak in terms of internal and external networking, competitiveness, innovativeness, human resources, and readiness to globalisation [Cuong *et al.*, 2008]. Apart from the low starting points of SMEs, these

shortcomings and weaknesses have been largely due to the prolonged discrimination against private sector's access to capital or credit and land, lack of a pro-private and competitive business environment, and poor quality of human resource and business support services. To strengthen and enhance SME networks, competitiveness, and innovativeness, Vietnam should abandon the position of retaining the lead role of state-owned enterprises in the national economy. There is a pressing need to level the playing field, create solid supporting industries, enhance the quality of human resources, and improve infrastructure.

13.3 Vietnam's Green Industry and SCP Policies

While Vietnam has maintained an intensive focus on a high industrial growth rate for an extended period, productivity remains low, reflecting low labour productivity and the less efficient use of technology, capital, materials, and energy [Ketels *et al.*, 2011]. Outdated and inefficient technologies and equipment are still in operation in many areas of high-energy use, such as power generation, steel, concrete and chemicals, causing significant waste of materials, and fuel. Moreover, enterprises and industrial products are less competitive in comparison with those of other countries in the region, and industry continues to discharge untreated waste, exacerbating environmental pollution and degradation. In the meantime, Vietnamese enterprises invest very little in R&D and technology innovation, on average, only 0.2–0.3% of total turnover [UNIDO, 2012].

13.3.1 Vietnam's Green Growth Strategy

Realising the urgent need to promote a shift toward more sustainable industrial development pathways, Vietnam's government has paid special attention to the promotion of green industry. Vietnam signed the Manila Declaration on Green Industry in Asia in 2009, participated in the Tokyo Green Industry Conference in 2011, and the United Nation Conference on Sustainable Development in June 2012 when the government pledged to promote green industrial development. The government has approved the Vietnam Green Growth Strategy for the period 2011–2020, with a vision to 2050, as “a decisive tendency in sustainable economic development.” The Vietnam Green Growth Strategy has overall objectives to achieve a

low carbon economy, enrich natural capital, and direct sustainable economic development. The objectives would be achieved by accelerating the process of economic restructuring in order to use natural resources efficiently, reducing greenhouse gas (GHG) emissions through research and application of modern technologies, developing infrastructure to improve the entire efficiency of the economy, coping with climate change, contributing to poverty reduction, and driving economic growth in a sustainable manner.

The strategy was approved in September 2012, and it is an effort to synthesise green action plans of major sectors and society. The strategy sets the tasks for the period 2011–2020 are to: (i) reduce the intensity of GHG emissions by 8–10% as compared to the 2010 level; (ii) reduce energy consumption per unit of GDP by 1–1.5% per year; (iii) reduce GHG emissions from energy activities by 10–20%. The orientation towards 2030 is to reduce annual GHG emissions by at least 1.5–2% and to reduce GHG emissions in energy activities by 20–30% (Prime Minister No.1393/QĐ-TTg, 2012).

The Vietnam Green Growth Strategy focuses on three priorities: climate change mitigation, green production, and green lifestyle. The solutions that have been identified include the construction of necessary infrastructure, technological innovation and the creation of an enabling environment through the elaboration of appropriate policy mechanisms, standards, technical regulations, and the rational use of natural resources including fossil fuels [LEDS, 2014]. The mainstreaming of cleaner production is especially endorsed by the Prime Minister in the 2009 Decision no.1419/QĐ-TTg on “Strategy on Cleaner Production (CP) in Industry Towards 2020.” The CP strategy is based on the approach of disseminating the CP concept to 63 provinces and cities nationwide via communication and mass media, technical assistance, CP networking, and financing mechanisms, which are to promote the industrial production facilities to participate in CP application. It targets at least 50% of industrial businesses, who would be made aware of the benefits derived from applying CP methods, and at least half of them would be expected to apply to reduce energy and material consumption by 2015; the strategy also wants to raise the figure to 90 and 50% respectively by 2020.

However, household level enterprises are large in number and as such pose a significant threat to environment, as they have not been considered to be included in the overall efforts to ensure sustainable production. There is a general lack of knowledge on environmental techniques and practices, added to which their limited resources, capacities and infrastructure, and the vulnerability of local communities in which they operate.

Green consumption and sustainable lifestyles refer to the regular practice of consumption of only environmentally friendly products that do not cause any damage to human health and do not threaten the functions and working of any natural ecosystem. Changing today's consumption patterns in order to preserve future opportunities is one of the themes for sustainable development.

The Green Growth Strategy sets the targets and actions for promoting sustainable consumption and building green lifestyle, including:

1. promoting eco-labelling and disseminating information on environmentally friendly products to the entire society (e.g., formulating a roadmap towards 2020 to initiate green procurement),
2. regulating public expenditure leading to the development and use of green economy standards (e.g., from 2015, all public works and projects should adhere to green economy standards, from 2017 all motorised vehicles purchased by public budget will meet emission standards),
3. applying economic and technical instrument to encourage sustainable consumption in the business sector and by people.

Developing greener consumption patterns will require co-operation from consumers, communities, and civil society. However, green lifestyles are not yet topical for research agenda and media programmes in Vietnam. Comprehensive research on aspects of green consumption using various framework approaches is needed, such as economic, psychology, sociology, and culture. In 2012, the European Commission (EC), through its SWITH-Asia Programme, sponsored an initial project of *GetGreen Vietnam* (detailed in Box 13.2) to promote sustainable living and working styles. However, this initial project was limited to consumers in only four cities [Hanoi, Da Nang, Ho Chi Minh City, and Can Tho]. Further efforts are needed to mainstream sustainable lifestyles throughout Vietnam.

13.4 Financing Green Growth in Vietnam

To support sustainable production in Vietnamese industries, some donor organisations have established financial mechanisms, namely The Green Credit Trust Fund (GCTF), Vietnam National Energy Efficiency Program (VNEEP), Vietnam Energy Efficiency and Cleaner Production (EECP) Financing Program, and Vietnam Clean Energy Program (VCEP). These financial mechanisms are described below. *GCTF* has the objective to promote long-term investments to SMEs in CP technology with a positive impact on the environment and to contribute to the sustainable development of Vietnam. The GCTF in Vietnam, with a USD 2.1 million guarantee fund, was introduced by the Swiss State Secretariat for Economic Affairs (SECO) through coordination with the Vietnam Cleaner Production Centre (VNCP) at the end of 2007. The credit size provided by local financial institutions is from USD 25,000 to USD 1,000,000 per project for the SMEs (either private sector or state-owned enterprises) with more than 50% Vietnamese ownership. The Green Credits have a maximum maturity of five years with market-based interest rates.

The Vietnam National Energy Efficiency Program (VNEEP) is the comprehensive programme of work to promote energy efficiency in Vietnam, released in 2005 by the Ministry of Industry and Trade (MOIT) under the framework of the National Strategic Program on Energy Savings and Effective Use for the period 2006–2015. As the first-ever long-term comprehensive plan to institute measures for improving energy efficiency and conservation in all sectors of the economy in Vietnam, VNEEP calls for coordinated efforts for improving energy efficiency, reducing energy losses, and implementing extensive measures for the conservation of energy. The VNEEP aims to reach a certain target of energy saving, which will result in lower investment requirements for the energy supply system and social economic benefits. At the same time, it will contribute to environmental protection and rational extraction of energy resources, moving towards social and economic sustainable development. VNEEP consists of 11 projects within four programme areas, i.e., awareness raising, industry, buildings, and transport. Support to SMEs in the chosen sectors is a priority for the VNEEP.

The Vietnam Energy Efficiency and Cleaner Production (EECP) Financing Program is an integral part of the International Finance

Corporation's (IFC) global Sustainable Energy Finance (SEF) Programme. EECP promotes greater energy efficiency, renewable energy, and CP methods and awareness. It aims to reduce emissions and improve the use of natural resources by increasing available financing for sustainable energy investments. In 2010, with a USD 25 million loan and technical support from IFC, Techcombank became the first bank to launch EECP lending in Vietnam, aiming to build a portfolio of USD 50 million in EECP loans over a two-year period.

The Vietnam Clean Energy Program (VCEP) is a five-year effort (during 2012–2017) to accelerate Vietnam's transition to climate resilient, low-emission sustainable development through clean energy development, by increasing the use of renewable energy technologies and energy efficient practice in the building sector, in close coordination with Vietnam's Ministry of Construction. The programme has been funded by the U.S. Agency for International Development (USAID). VCEP lays the groundwork for an increased private sector engagement by developing public–private partnerships with private sector banks, building developers and owners, as well as industry organisations. In addition, the programme identifies potential funding sources for green buildings that comply with Vietnam's energy code and adopt a green building certification system recognised by the government.

13.5 Status of International Aid Cooperation for Greening Industry and Promoting SCP

The socio-economic development strategy of Vietnam in the period of 2011–2020 will focus on structural reforms, to ensure sustainable environment, social equity, as well as new issues that arise in the process of macro-economic stabilisation. The strategy identifies three “breakthrough areas” including: (i) promoting human resources/skills development (particularly skills for modern industry and employment innovation); (ii) enhancing the institution of market economy; and (iii) infrastructure development. Since 2009, Vietnam has officially shifted into the middle-income country segment and achieved two of the five MDGs; the other two goals will be gained in 2015. However, many development issues and challenges in poverty elimination still exist, which are very complex, and support is still needed from development partners.

The World Bank's Country Partnership Strategy (CPS) to Vietnam ensures the support of investments and policies in three pillars, namely: (i) strengthening Vietnam's competitiveness in the regional and global economy, (ii) increasing the sustainability of its development, and (iii) broadening access to opportunity. Three key cross-cutting themes are: (i) strengthening governance, (ii) supporting gender equity, and (iii) improving resilience in the face of external economic shocks, natural hazards and the impact of climate change. United Nations agencies are working in partnership with the Vietnamese government to develop the One Plan. The One Plan 2006–2011 built on key components of the UN Development Assistance Framework (UNDAF) and harmonised the individual Country Programmes, the Country Programme Documents and the Country Programme Action Plans of individual Participating UN System Agencies (17 participating UN system agencies). The One Plan 2012–2016 identifies the key interventions that will be made over the five years in response to the national priorities established in SEDS 2011–2020 and 2011–2015 SEDP and selected focus areas of UN in Vietnam. The overall budget for the One Plan 2012–2016 is USD 480 million. The UN Agencies system in Vietnam will concentrate on the focus areas: (i) inclusive, equitable and sustainable growth, (ii) access to quality essential social services and social protection, and (iii) governance and participation.

The joint programme between UN Participating agencies, such as FAO, ILO, UNIDO, UNCTD, and ITC, under the "Development and Private Sector" Thematic Window of the Millennium Development Goals Achievement Fund (MDG-F) on green production and trade, increases income, and employment opportunities for the rural poor in four northern targeted provinces of Vietnam, namely Thanh Hoa, Nghe An, Hoa Binh, and Phu Tho. The joint programme focuses on five value chains: (i) bamboo/rattan, (ii) sericulture and weaving, (iii) sea grass, (iv) lacquerware, and (v) handmade paper. It has the approach of developing a better integrated, pro-poor and environmentally sustainable "green" value chain, enabling poor growers, collectors, and producers to improve the products and link them to more profitable markets. The total MDG-F fund was USD 4,120,000 within which the Vietnamese Government contributed USD 120,000 during 2010–2012.

Vietnam also has development programmes in place with the European Union, which are broader scale and mobilise effective public

and private resources for development. Since receiving the first development grants from the EC 20 years ago, Vietnam has achieved in eradicating and eliminating poverty and sustainable development. During the period 2007–2013, EC support to Vietnam focussed on sustainable production in line with the “European Consensus Development”, with an indicative allocation of EUR 304 million. The support was divided into two phases: Phase 1 (MIP1) with EUR 160 million (2007–2010) and Phase 2 (MIP2) with EUR 144 million (2011–2013). The objectives of the support were to focus on the implementation of Vietnam’s socio-economic development plan (SEDP, 2006–2010), which stressed economic development, poverty reduction, the reform agenda, and reflected new challenges such as WTO accession and the health sector. Additional action funding was provided for trade-related assistance and support to EC-Vietnam strategic dialogue. Based on future “SEDP 2016–2020”, the EU has reconfirmed its support for Vietnam as reflected in the overall strategic objective to further develop political, economic and cultural ties and to increase their visibility, understanding and presence in Vietnam. The multiannual indicative programme (MIP) for Vietnam provides financial support of EUR 400 million, of which 86.5% is for sustainable energy, 12.5% for governance and rule of law, and 1% for support measures. This shows the EU’s support for the two sectors, making full use of the “leverage effects” of supporting ODA grants and the medium-term support of an enabling environment for private sector investment in sustainable and clean energy. The EU estimates that Vietnam will become a net energy importer in 2015 and will import half of its energy resources in 2030; therefore, cooperation on the development on sustainable energy is an important focus.

13.6 The SWITCH-Asia Programme in Vietnam

As part of the cooperation on sustainable development, the EU has already funded eight projects in Vietnam under the SWITCH-Asia Programme to promote the transition towards SCP patterns. SWITCH-Asia projects have been active in areas such as sustainable use of forest resources, corporate social responsibility (CSR), energy efficiency, sustainable aquaculture, and awareness raising for sustainable lifestyles. A brief overview of these projects is provided in Table 13.3.

Table 13.3: SWITCH-Asia programme overview in Vietnam

Project Name	Period	Main Implementing Organisation	Places of Implementation	SCP Practice	Brief Description of Objectives or Impact
CSR Vietnam: Helping Vietnamese SMEs Adapt & Adopt CSR for Improved Linkages with Global Supply Chains in Sustainable Production	Feb 2009– April 2013	UNIDO	Hanoi, Danang, and HCM City	International standards (CSR)	Awareness of the multidimensional nature of CSR (ISO26000) was improved among SMEs; criteria and the procedures of the 2012 National Vietnamese CSR Award were redesigned — now including the core subjects of ISO26000.
SUPA: Establishing a Sustainable Pangasius Supply Chain in Vietnam	4/2013– 3/2017	VNCPC	Vietnam	Sustainable supply chain, resource efficiency, CP	At least 70% of the targeted middle to large <i>Pangasius</i> producing and processing SMEs, and 30% of feed producers, hatcheries and small independent production SMEs are actively engaged in RE-CP; and at least 50% of targeted processing SMEs are providing sustainable products with ASC standard to the EU and other markets.
MEET-BIS Vietnam: Mainstreaming Energy Efficiency Through Business Innovation Support, Vietnam	04/2009– 09/2013	ETC Energy, the Netherlands	Ha Noi and HCMC	Energy efficiency	The project promoted sustainable production of urban-based SMEs in Vietnam by supporting development of sustainable markets for affordable water & energy efficiency technologies. The project worked with private sector suppliers to develop commercially attractive business innovation packages targeting SMEs. These business innovation packages consisted of both a technical and financial solution.

GetGreen VN: Sustainable Living and Working in Vietnam	4/2012–3/2015	Delft University of Technology	Hanoi, Da Nang, HCM, and Can Tho	Sustainable consumption	The project empowered “Change Agents” to change their consumption behaviour towards sustainability. Actions are taken for big changes for the environment through small shifts in their own habits, which contribute to an increased share of sustainable consumption by Vietnamese consumers by increasing the capacity of consumer organisations and the government in convincing and supporting consumers in making the choice for more environmentally friendly behaviour.
SPIN-VCL: Sustainable Product Innovation (SPI) in Vietnam, Cambodia and Laos	4/2010–3/2014	Delft University of Technology	Vietnam, Cambodia, and Laos	Product design for sustainability	The project contributed to the improved innovative power of industry and the improved environmental and societal quality of products made in Vietnam, Laos, and Cambodia. This was realised by implementing SPI on a significant scale in these three countries. The outcomes of the action contribute to a decrease of environmental impact and improve social sustainability aspects connected to products over their whole lifecycle.

(Continued)

Table 13.3: (Continued)

Project Name	Period	Main Implementing Organisation	Places of Implementation	SCP Practice	Brief Description of Objectives or Impact
Sustainable and Responsible Trade Promoted to Wood Processing SMEs through Forest and Trade Networks in China, India, and Vietnam	01/2009–01/2013	WWF	Jiangsu province, Jiashan in Zhejiang province, Linyin in Shandong province, and Zengding in Hebei province (China), Rajasthan, Kerala, and Uttar Pradesh districts (India), and HCM, Binh Duong, Dong Nai, and Binh Dinh (Vietnam)	Sustainable production, eco certification	This project focused on SME wood processors to build their capacity for responsible sourcing and production of forest products. 600 SMEs in the wood processing sectors of China, India, and Vietnam applied sustainable production techniques and provided certified sustainable forest products to national and international markets.
Sustainable Rattan: Establishing a Sustainable Production System for Rattan Products in Cambodia, Laos, and Vietnam.	01/2009–12/2011	WWF Greater Mekong Laos Country Programme	Cambodia, Laos, and Vietnam	CP, product design for sustainability	By 2015, at least 50% of rattan processing in the region is sustainable, leading to environmental improvements, strengthened competitiveness, poverty alleviation, and national economic benefits. The project sought to address the “Sustainable Rattan Industries” and boosted the export of sustainable rattan products from Cambodia, Laos, and Vietnam.

The following two prominent projects funded by the SWITCH-Asia Programme are taken as case studies (see Boxes 13.1 and 13.2).

Box 13.1 Implementing SPIN — SPI by SMEs in Vietnam, Laos, and Cambodia

SPI is regarded as a significant factor in the approach to SCP, in a broad range in the three countries. Innovation for sustainable product design is the key to create new business activities. The four-year SPIN project with a budget of EUR 2.8 million (80% of funding provided by the SWITCH-Asia Programme and 20% from the project's partners) was implemented in Vietnam, Laos, and Cambodia from April 2010 to March 2014. The lead partner was Delft University of Technology (TU Delft) and other partners were the VNCPC (VNCPC), the Asian Institute of Technology in Vietnam (AITVN), the Lao National Chamber of Commerce and Industry (LNCCI), the Cambodian National Cleaner Production Office (NCPO) and the United Nations Environment Programme (UNEP). Built on the EU Asia-Invest project on SPI in the region (CP4BP — Cleaner Production for Better Products, November 2007 to July 2009), the experiences and lessons learnt brought into the SPIN project included: (i) the concept of Design for Sustainability (D4S) and the possibility to streamline this approach; (ii) added value from the suitability approach for quality products; (iii) the challenges for companies and their intermediaries in integrating sustainability; (iv) the need of companies for technical support to develop sustainable innovation and marketing capacity to sell new products; and (v) the need for strong commitment from companies.

Project objectives and general results

The project aimed to improve the innovative power of industry and to increase the environmental and societal quality of products made in Vietnam, Laos, and Cambodia by implementing the SPIN concept on a significant scale, in five key industrial sectors. Overall, the SPIN project was implemented successfully beyond committed outputs and expected results, especially creating significant impacts and interest from various stakeholders through a regional office called Green Office (GO) and three desk offices (in Ho Chi Minh City, Vientiane, and

(Continued)

Box 13.1 (Continued)

Phnom Penh) as support centres for companies and independent consultants and designers.

Selected sectors and SMEs

The project reached out to more than 540 SMEs in the region in five relevant sectors with 21 sub sectors. These were food processing, textiles, footwear, handicraft, and furniture sector. These sectors were selected due to their substantial share in the economy of the region, as well as for their overall negative impact on environmental and social sustainability, and as they had a high potential for further multiplication because of their structure and product portfolio.

Methodology and toolkit

Developed by TU Delft, a versatile toolkit was designed for a user-friendly and practical approach (Jansen and Crul, 2012). There were five instant packages for companies to apply. The project addressed not only innovation of products, but also marketing. The documents were made available online as a knowledge base for company consultation, combined with studies on policy and institutional mechanisms.

Training, Capacity building, and stakeholder engagement

SMEs were supported both on-site and remotely by SPIN resource institutions and experts that included 18 international experts, 23 local designers, 25 local experts, 11 Master's students, 2 PhD candidates from TU Delft and 17 international/local volunteers. Various forms of capacity-building activities, such as training, knowledge transfer, and awareness raising workshops were organised. In total, 18 official training courses and 12 other courses regarding SPIN methodology, toolkit, and branding/marketing skills were delivered to over 400 participants from different fields. To increase results, SPIN project established partnerships or cooperation with stakeholders: (i) 14 development

(Continued)

Box 13.1 (Continued)

organisations such as SNV, GIZ, Oxfam, (ii) 4 design organisations like VietMODE, and (iii) sector associations like HAWA.

Number of SPIN products & sustainable technologies

Over 2,000 new or re-designed sustainable products (in comparison with a forecast of 1,000) in key industries in Vietnam, Cambodia, and Laos were developed by SMEs together with the international/local experts participating in the project. These products covered daily lifestyle topics including living, wearing, working and eating. The products were made available to the public through e-catalogues. One essential factor that helped the SPIN project generate interest from companies was the development of over 30 sustainable technologies. These included technologies for renewable energy, organic farming, green materials, and packaging solutions.

Outreach initiatives

Together with several companies participating, the SPIN project promoted other initiatives including: (i) **i-nature** for sustainable agriculture, (ii) **Green Street**, an outlet and co-creation space connecting sustainable producers and consumers, (iii) **Green designer club** where exchanges took place between designers, and (iv) the **SPIN-e platform**, which helped the project interact online with companies.

Synergies

Within the project implementation period, the SPIN project created synergies with various partners in different fields that helped to strengthen the sustainability of project's results. These included: (i) GetGreen Vietnam for sustainable consumption (see case study in Box 13.2), (ii) Green Credit Trust Fund (funded by SECO) for technology innovation, (iii) One-UN for green production and trade for the rural poor, (iv) Future Living Studio project, (v) VECO

(Continued)

Box 13.1 (Continued)

for innovating packaging solution, (vi) World Bank for blended training solutions, and (vii) Leapfrog project from Dassault, France, for testing the sustainable design module of SolidWorks design software.

Policy advocacy

The sustainable and replicable outcomes from the project have been used as input for the promotion of sustainable public procurement policies by developing policy advice on favourable policy and institutional mechanisms that encourage proactive and innovative engagement of businesses. This attracted the attention of enterprises to the opportunities of shifting from traditional product processes to innovative approaches. At the national level, Vietnam and Cambodia's commitment to pursue clean and sustainable production (Green Growth strategy) provided the SPIN project with an opportunity for leveraging and advocating its policy recommendations for national strategies.

Remaining challenges for sustainable innovation

Although achieving certain results, the project also found that there were many external and internal challenges and barriers for sustainable innovation in Vietnam.

Internal challenges included: (i) Most SME leaders were aware or conscious about the importance of creativity and innovation, but did not think to transform their awareness into action due to limited knowledge, no methodology or tools, and limited supporting resources, (ii) Cultural and structural barriers in institutions that are managed in a traditional way. Leaders were often not able to share their vision with employees so that the entire organisation does not perceive innovation as strategic for corporate culture, (iii) capacity of accessing, understanding and responding to the market was weak.

External challenges included: (i) the involvement of the whole supply chain in the process of innovation and ability to participate in the global supply chain were limited, (ii) consumption culture and tastes of consumers were not sustainable so that the market for sustainable products was small, (iii) the mechanisms and policies to support businesses with sustainable innovation had not kept pace with the actual situation.

This case study was written by Nguyen Hong Long (Centre for Creativity and Sustainability, Hanoi) and Doan Minh Quang (iNature, Hanoi).

Box 13.2 GetGreen Vietnam — Sustainable Living and Working in Vietnam

The SCP concept has just been introduced to Vietnam recently, and most of the government efforts to promote it are in industrial sectors. Sustainable consumption is still at a very low level even in big cities where the citizens are usually more educated. For this reason, the SWITCH-Asia “GetGreen Vietnam” project aimed to improve the situation (Koning *et al.*, 2015). To promote sustainable living and working lifestyles in Vietnam, the “GetGreen Vietnam” project was implemented during 2012 and 2015 with three partners: Delft University of Technology, the Vietnam Cleaner Production Centre, and the Asian Institute of Technology in Vietnam. Aiming at contributing to an increased share of sustainable consumption among Vietnamese consumers, the “GetGreen Vietnam” project’s strategy was to empower consumers to create **behaviour changes** and then become **change agents** who not only move to more sustainable habits themselves, but also inspire and convince their families, friends and colleagues to change. The main target groups of the project were middle class consumers including students, office workers, and community groups. Fifty-six experts from various organisations and different cities were trained on the methodology to become GetGreen trainers. The project developed the GetGreen Guidebook including eight clusters on different working and living topics (e.g., supermarket, kitchen, office, transportation) to serve as the source of information for its trainers and participants. The approach was to target consumers in the same living or working contexts (e.g., workers in the same office, people living in the same community) because Vietnamese people are usually collectivistic (or group-oriented) and tend to act when being supported by the people surrounding them. The group implementation approach combined informative meetings and field trips to enhance consumers’ experience of **sustainable lifestyles**. This approach proved to be successful.

After three years of implementation, the project resulted in empowering 1,099 change agents from 52 consumers groups from Hanoi, Da Nang, Ho Chi Minh City, and Can Tho. They were encouraged to share sustainable consumption knowledge with their colleagues, friends, and family members to enhance the impacts of this lifestyle. To illustrate the impact, Mr. Le Viet Hung — a change agent in Hanoi who runs a small cafeteria — shared what he learnt in the project with his family and together they support each other to live

(Continued)

Box 13.2 (Continued)

sustainably. His electricity bill decrease considerably from VND 3,935,000 VND (EUR 165) per month to VND 3,268,000 (EUR 137) per month. This behavioural change took place only in three months and resulted from applying simple ‘green tips’, such as switching off lights when leaving the room and using stickers to remind people, unplugging all devices when not in use, avoiding using many electricity devices during the peak hours, etc. The bill, after that first month, continued to go down slightly.

The GetGreen Vietnam project, cooperating with sustainable consumers groups, also created a link between consumers and producers for more sustainable products/services. Sixteen **co-creation** sessions were implemented between consumers and companies in sustainable food processing, transportation, and tourism sectors. The method of the co-creation sessions received much positive feedback from both consumers and companies’ representatives. Several achievements were implemented, e.g., by Viet Lien, a company producing organic foods. The company directly implemented suggestions that resulted from the co-creation sessions. Viet Lien developed new packaging designs for its organic tea products. Another example is Tra Que Herb farm (Hoi An, Quang Nam) which successfully organised a green market at their farm with a variety of organic vegetables grown by local farmers. The green market attracted more than 300 local consumers and international tourists. All consumers participating in the co-creation sessions felt more active and empowered to contribute to creating more sustainable products. Overall, the project’s review showed that on average, the participants improved from applying 65 to 78% of all suggested sustainable actions. Prior to the project’s implementation, the office worker groups were the most sustainable. But after joining the GetGreen project, the student and community groups had the most positive change. The target groups were mostly concerned with energy issues (project cluster “energy efficiency”) and food issues (project cluster “in and around supermarket”).

The two smaller cities, Da Nang and Can Tho, showed better results in terms of participation and change compared to the other bigger cities of Hanoi and Ho Chi Minh City. The difference occurs probably due to the fact that fewer similar activities are offered in smaller cities, creating relatively higher commitment from the participants to the “GetGreen Vietnam” project.

(Continued)

Box 13.2 (Continued)

The experience and learning from the project showed that motivations towards sustainable consumption in Vietnam include:

1. Tendency to save: Vietnamese people in general have the habit of saving, not only financially, but also using goods sparingly and keeping good maintenance.
2. Great concern about food safety: food is the first type of product for which consumers are willing to switch to sustainable alternatives, and are also willing to pay a higher price compared to the normal products.
3. High awareness of environmental issues: in recent years, people have become more aware of the severe environmental degradation and they want to do the right thing for the environment.
4. It's a lifestyle trend: living sustainably is a new trend in which young and open-minded people want to be in the lead.

Furthermore, Vietnamese consumers were involved through networking and information dissemination activities, including the website, social networks, brochures, press releases, and events. Other means of communication and behavioural change education, such as promotion and training materials (i.e., "Tips and Tricks" leaflets, short films on sustainable consumption available for Internet/PC use) also have been exploited. Based on the experiences of the "GetGreen Vietnam" project, a handbook for developing and implementing projects on sustainable consumption was published [Marel, Crul and Koning, 2015].

This case study was authored by Ta Huong Thu and Nguyen Thi Phuong Nhung of the SWITCH-Asia GetGreen Vietnam Project.

13.7 Conclusion and Recommendations

With the advantageous conditions of its natural resources, human capacity and geo-political position, Vietnam could be a prosperous nation. However, due to two bloody wars and being trapped in the cold war during the 20th Century, Vietnam is still a developing country with GDP per capita of USD 2,000. Although the country has made great progress through the transition period from a centralised-planned economy to the

social-oriented market system, Vietnam faces many challenges to make its development path sustainable. Its population is young, but low skills levels have led to low productivity. Economic sectors are less integrated within the global economy even though Vietnam has participated in many global organisations and regimes, such as WTO, AFTA, bilateral trade agreements (e.g., with EU, Japan, China, U.S.) and the upcoming Trans-Pacific Partnership (TPP). Vietnam has enjoyed successful development of the labour-intensive industries such as food processing, footwear and textiles, and electronic products and equipment. With the export oriented-economy, many of Vietnam's products are exported to various countries, but the added value of the products is low. For over two decades focusing much on labour-intensive and less efficient industries, Vietnamese economy is ranked as less competitive due to the poor governance, weak physical infrastructure, and less innovative activities.

Regarding Vietnam's SMEs, outdated and inefficient technologies and equipment are still in operation in many areas of high-energy use. Aware of the urgent need to promote a shift toward more sustainable industrial development pathways, Vietnam's government has paid special attention to the promotion of green industry. The Green Growth Strategy was approved in 2012 and aims to achieve a low carbon economy, enrich natural capital, and direct sustainable economic development. The strategy focuses on three priorities of climate change mitigation and adaptation, green production, and green lifestyle. In particular, the efforts of greening production and lifestyles are part of SCP practice which is promoted by the SWITCH-Asia Programme. The objectives of the Green Growth Strategy could be achieved by accelerating the process of economic restructuring in order to use natural resources much more efficiently, reducing greenhouse gas emissions through research into and application of modern technologies, and developing infrastructure to improve the entire efficiency of the economy. International aid programmes have provided great assistance for Vietnam's development during its renovation period. In the next decades, the country still needs international assistance to promote economic development towards a more sustainable pathway as specified in the country's development strategy. The areas that need most assistance are rural and agricultural development, renewable energy, climate change adaptation and mitigation, and legislature law reform.

References

- ADB (2015). Asian Development Outlook 2015: Financing Asia's Future Growth. *Asian Development Bank, March 2015*.
- ADB (2013). Asia SME Finance Monitor, *Asian Development Bank*. Retrieved on October 14, 2015. Available on: <http://adb.org/sites/default/files/pub/2014/asia-sme-finance-monitor-2013.pdf>.
- Binh, L. D. (2013). Investments by SMEs in EE in Vietnam and Main Barriers. Alternative options for financing support for investments in energy efficiency by SMEs in Vietnam. Consultation Workshop. Hanoi, November 13, 2013.
- Cuong, T. T., Sang, L. X. and Anh, N. K. (2007). Vietnam's small-and medium-sized enterprises development: Characteristics, constraints and policy recommendations. *SME in Asia and Globalization, ERIA Research Project Report 5*, 323–364.
- DANIDA (2012). *Project Document "Low Carbon Transition in the Energy Efficiency Sector"*. Ministry of Industry and Trade, Ministry of Construction of Vietnam, Hanoi.
- EPI (2014). *Environment Performance Index*. Yale University. Available on: <http://epi.yale.edu/data>.
- FAO (2009). Vietnam forestry outlook study. *Food and Agriculture Organization of the United Nations. Working Paper No. APFSOS II/WP/2009/09*.
- GSO (2015a). Statistics handbook of Vietnam 2014. *General Statistics Office of Vietnam*.
- GSO (2015b). Tình hình kinh tế xã hội 2014 (Status of economics and society in 2014). *General Statistics Office of Vietnam*. Available on: <http://www.gso.gov.vn/default.aspx?tabid=621&ItemID=14188>.
- Hong, P. N., Dao, Q. T. Q. and Thoa, L. K. (2002). *Ecotourism in Vietnam: Potential and Reality*. Kyoto Review of Southeast Asia.
- Jansen, G. J and Crul M. R. M. (2012). *Sustainable Product Innovation. A Do-it-yourself Toolkit for SMEs in developing Countries*. TU Delft, the Netherlands.
- Ketels, C., Cung, N. D., Anh, N. T. T. and Hanh, D. T. (2011). *Vietnam Competitiveness Report 2010. Central Institute for Economic Management (CIEM) under Vietnam's Ministry of Planning and Investment and the Asia Competitiveness Institute (ACI) of the Lee Kuan Yew School of Public Policy, National University of Singapore*.
- Koning, J. I. J. C de, Crul, M. R. M., Wever, R. and Brezet J. C. (2015). Sustainable consumption in Vietnam: An explorative study among the urban middle class. *International Journal of Consumer Studies*, 39(6), 608–618.

- LEDS (2014). *Workshop Report on Accessing Finance for Green Growth and LEDS*. Asia LEDS Partnership, Hanoi, March 12–14, 2014 in Hanoi, Vietnam.
- Marel, F. van der, Crul, M. and de Koning, J. (2015). *Handbook Changing Behaviour Towards Sustainable Consumption*. TU Delft, the Netherlands.
- MOIT (2014). Export potential assessment for Vietnam. *Ministry of Industry and Trade*, Hanoi, 2014.
- Prime Minister No.1393/QĐ-TTg, (2012). Decision on Approval of the National Green Growth Strategy. *Prime Minister of Vietnam, Hanoi*, 2012.
- SECO (2013). Vietnam Country Strategy 2013–2016. *Swiss Economic Cooperation and Development*.
- Tuoitrenews (2012). *Vietnam Air Pollution among the Worst in the World (05/02/2012)*. Available on: <http://tuoitrenews.vn/features/482/vietnam-air-pollution-among-the-worst-in-the-world>
- UNDP (2013). Human Development Report 2013, Vietnam. *United Nation Development Program*. Available on: <http://hdr.undp.org/sites/default/files/Country-Profiles/VNM.pdf>.
- UNIDO (2013). Greening Value Chains For Sustainable Handicrafts Production in Vietnam. *Industrial Development Organization, United Nations*.
- UNIDO (2012). Towards green growth through green industry development in Vietnam. *Industrial Development Organization, United Nations*.
- UNIDO (2000). Assistance to Industrial SMEs in Vietnam: Moving towards a conducive policy framework and improved business development services. *Working Paper No. 5. Industrial Development Organization, United Nations*.
- VEPR (2015). Vietnam Annual Economic Report 2015 “Integration Opportunities, Integration Challenges”. *The Vietnam Institute for Economic and Policy Research (VEPR)*.
- VTB (2013). *Natural Rubber Industry in Vietnam, Vietinbank Sc Industry Report*.
- WB (2015). Opening remarks at the launch of the climate public expenditure and investment review. *World Bank*, May 21, 2015. Available on: <http://www.worldbank.org/en/news/speech/2015/05/21/opening-remarks-at-the-launch-of-the-climate-public-expenditure-and-investment-review>.