Global Green Growth Institute

GGGI
Viet Nam Country Planning Framework 2016-2020

Table of Contents

Foreword 3
Abbreviations and Acronyms 5
Executive Summary 7
1. Introduction to the Country Planning Framework 11
2. Country Overview 13
2.1 Green Growth Performance Mixed 14
2.2 Political Shifts Resulted in Recent Economic Success 15
2.3 Poverty Dramatically Reduced 15
2.4 Market Diversification and International Trade Boosted Growth but Domestic Challenges Remain 15
2.5 Inclusive Growth Essential 16
2.6 Key Socio-Economic Challenges Ahead 16
2.7 Committed to Environmental Conservation yet Highly Vulnerable to Climate Change 17
2.8 Strong Governance Key to Deliver Green Growth 18
3. National Priorities 21
3.1 Analysis of Viet Nam's Policies and Programs on Green Growth 21
4. GGGI's Engagement in Viet Nam 27
4.1 Engagement to Date and Key Results 27
4.2 GGGI's Comparative Advantage 28
5. Country Planning Framework Analysis 31
5.1 Institutional Arrangements and Planning Processes are Overlapping, Not Optimally Coordinated or Lack Sufficient Green Growth Mainstreaming 32
5.2 Lack of Finance at Scale for Green Growth Investments Inhibits Sustainable Development and Encourages "Brown Growth" 33
5.3 The Enabling Environment for the Development, Implementation and Scale Up of Clean and Efficient Energy Technologies is Insufficient 33
5.4 Rapid Urbanization Has Had Negative Consequences in Terms of Green Growth 35
6. Strategic Response 39
6.1 Outcome 1: Green Growth Objectives are Mainstreamed into Development Planning Processes and National Financing Arrangements 39
6.2 Outcome 2: Green Energy Uptake is Increased through Enhanced Enabling Environments and the Development of Bankable Projects 40
6.3 Outcome 3: Green Growth is Integrated into Viet Nam's Urban Development Strategies and Bankable Projects are Developed 41
6.4 Alignment with the GGGI Strategic Plan, SDGs and NDC 43
Annex A: References for Table 1. Viet Nam at a Glance 49
Annex B: Consultation Summary 51
Annex C: Indicators for Green Growth Diagnostic 54

Foreword

Viet Nam has undergone rapid growth since the onset of the *Đổi Mới* economic reforms in 1986; with a move away from a centrally planned economy to one more open and market oriented, as well as the ending of the American trade embargo in 1995. These major events have resulted in gross national income per capita increasing from USD 130 in 1990 to USD 1,890 in 2014, and a fall in the poverty ratio from 49% in 1993 to 17% in 2012.

With this rapid development there are challenges to green growth. Viet Nam, and especially the Mekong Delta, is one of the most vulnerable countries in the world to climate change, rising emissions from dependency on coal-based power production, and in the cities a lack of wastewater treatment and public transport facilities.

Recognizing these challenges, the Government of Viet Nam (GoV) launched the Green Growth Strategy (VGGS) in 2012 and subsequent Green Growth Action Plan in 2014. Taken together, these outline Viet Nam's ambition to build an inclusive, sustainable, green economy for all of Viet Nam's citizens. Further, the country reaffirmed its support to green growth through the submission to the United Nations Framework Convention on Climate Change of its Nationally Determined Contribution, and the signing of the Paris Agreement.

The Global Green Growth Institute (GGGI) began working in Viet Nam in 2011, and Viet Nam is a founding member country of GGGI, having signed and ratified the establishment agreement in 2012. GGGI has collaborated on implementing the Green Growth Strategy, spanning the finance, water and urban sectors. Both the GoV and GGGI recognize that there are still many challenges to overcome to realize Viet Nam's green growth ambitions.

It is against this background that GGGI presents this Country Planning Framework (CPF) to support Viet Nam in overcoming these potential challenges. At the center of the CPF is the view that the GoV can best build on its considerable successes by ensuring that future development is increasingly equitable, inclusive and sustainable. This will consequently reduce Viet Nam's vulnerability to climate change. Therefore, GGGI and the GoV have agreed on this five-year CPF to direct support to where it is most needed. The CPF is aligned with the Socio-Economic Development Plan (SEDP) and the VGGS, and is designed to provide strategic support to the GoV in achieving its green growth ambitions. The CPF will guide GGGI's activities in Viet Nam, in order to maximize the value and impact to the core economic objectives of the country, as outlined in the SEDP and VGGS.

We are grateful to the sector Ministries, development partners and stakeholders for their support of, and engagement with, GGGI in the development of this CPF.

We reaffirm our joint commitment to enhancing the effectiveness of GGGI as a key partner in Viet Nam's green growth ambitions.

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Abbreviations and Acronyms

ADB	Asian Development Bank
AFD	Agence Française de Développement
ASEAN	Association of Southeast Asian Nations
BNEF	Bloomberg New Energy Finance
BTC	Belgian Development Agency
CPEIR	Climate Public Expenditure and Institutional Review
CPF	Country Planning Framework
CTF	Clean Technology Fund
FCPF	Forest Carbon Partnership Facility
GCF	Green Climate Fund
GGGI	Global Green Growth Institute
GGPA	Green Growth Potential Assessment
GGSF	Green Growth Strategy Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GNI	Gross National Income
GoV	Government of Viet Nam
JICA	Japan International Cooperation Agency
KOICA	Korean International Cooperation Agency
MDG	Millennium Development Goal
MIC	Middle Income Country
MOC	Ministry of Construction
MONRE	Ministry of Natural Resources and Environment
MOT	Ministry of Transport
MPI	Ministry of Planning and Investment
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organization
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
SDG	Sustainable Development Goal
SEDP	Socio-Economic Development Plan
SEDS	Socio-Economic Development Strategy
TPP	Trans-Pacific Partnership
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNREDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation
USAID	United States Agency for International Development
UXO	Unexploded Ordinance
VDB	Viet Nam Development Bank
VGGAP	Viet Nam National Green Growth Action Plan
VGGS	Viet Nam National Green Growth Strategy
VNMC	Viet Nam National Mekong Committee
VSCC	Viet Nam National Strategy on Climate Change
WB	Worldbank

Photo © Julie Vola / Word Vietnam

Executive Summary

The Country Planning Framework (CPF) sets the strategic direction for the Global Green Growth Institute (GGGI) in Viet Nam over the period 2016 to 2020.

The CPF has been co-led by GGGI and the Ministry of Planning and Investment (MPI), the focal point for green growth in Viet Nam. During the formulation, consultations have been held with a range of government, non-government, private sector and civil society partners, both bilaterally and during a national consultation workshop.

The CPF presents the in-country strategy for the delivery of measurable results against the GGGI Results Framework. The CPF aligns with national priorities found in Viet Nam's National Green Growth Strategy (VGGS) and the Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change, as well as international processes under the Sustainable Development Goals (SDGs).

Viet Nam's rapid development has been met with challenges to green growth, especially around energy emissions and urban air quality.

Viet Nam's gross national income (GNI) per capita has increased from USD 130 in 1990 to USD 1,890 in 2014 as a result of a shift from a centrally planned economy to a more market oriented one. Success on poverty reduction has been substantial with the poverty headcount ratio decreasing from 49.2% in 1993 to 17.2% in 2012—higher rates are seen among non-Kinh minorities (60%) than the Kinh majority (10%).

Diversifying the economy is a priority in the long- and medium-term development plans. Viet Nam has increased the share of economic gains from the private sector while scaling back the role of state-owned enterprises through a policy of equitization. Foreign direct investment has increased, although it has initially focused on low value-added manufacturing this is beginning to change with a shift toward high-tech industries. Viet Nam is a member of a number of free trade agreements, and has recently agreed to one with the European Union and the Trans-Pacific Partnership (TPP). As the lowest income country covered by the TPP, Viet Nam is projected to gain considerably in terms of exports and further GNI growth.

Urban populations have increased at 3% annually, which has resulted in worsening air and water quality. Viet Nam's most recent greenhouse gas emissions inventory shows a 602% increase since 1990. Moreover, emissions growth per unit of GDP has surpassed all other Asia-Pacific developing countries except for China. The emissions are a result of the power generation, transport, industrial and cement sectors. Most notable is the electricity sector in which coal currently makes up 36% of the electricity supply, and is set to grow to 56%.

These figures are backed up by GGGI's Green Growth Potential Assessment that shows challenges remain around air quality, carbon intensity, CO_2 emissions growth and waste generation intensity. The assessment highlights the lack of renewable energy as a major challenge, but also draws attention to Viet Nam's successes, especially in the area of reforestation.

Viet Nam has made green growth a clear national priority.

This is shown through the Socio-Economic Development Strategy and Plan, the National Green Growth Strategy and Action Plan, as well as key climate change priorities outlined in the National Strategy on Climate Change and NDC, and the signing of the Paris Agreement.

The NDC sets an unconditional emissions reduction target of 8% and a conditional emissions reduction target of 25%, these are roughly equivalent to those outlined in the VGGS.

Viet Nam has established a number of national financing vehicles to support implementation of green growth, such as the Green Growth Strategy Facility and the Environmental Protection Fund.

GGGI has partnered with Viet Nam since 2011, and as a trusted advisor, embedded within the government, has delivered a number of results in the finance, water and urban sectors.

This includes working with the Viet Nam National Mekong Committee on capacity development, strategic policy advice and investment identification, as well as launching a flagship report on unleashing green growth in the Mekong Delta and developing a detailed study on wastewater investment needs in Tien Giang province.

Building on this work, GGGI is developing a bankable project for urban wastewater management in Ben Tre City, enabling the city to access a loan from the Asian Development Bank (ADB) for up to USD 25 million.

In the urban sector, GGGI has partnered with the Ministry of Construction (MOC) to develop a set of urban green growth indictors, and with Da Nang City on a Green Growth City Development Strategy. GGGI has also provided a series of interactive capacity development workshops for municipal decision makers.

GGGI, together with the United Nations Development Programme have worked with MPI to develop the Investment Guidelines for Green Growth. These guidelines enable the line ministries to mainstream green growth into their public sector financing decisions, including the Socio-Economic Development Plan.

GGGI is established as a trusted advisor to MOC and MPI, and through initiatives such as the Inclusive Green Growth Partnership, can bridge the public and private sectors to develop bankable projects and scale up national financing vehicles, to leverage the needed financial resources.

The CPF has identified four critical threats to achieving Viet Nam's green growth objectives.

The government's institutional arrangements and planning processes are overlapping, not optimally coordinated, or lack sufficient green growth mainstreaming. This can be seen by the conflicting responsibilities and planning processes for climate change and green growth, as well as the different and incompatible targets across a number of strategy documents. Further, a focus on strategies over projects has meant a slow start for implementing green growth.

There is a lack of the necessary finance for green growth, with the estimated requirement of around USD 30 billion to implement the Green Growth Strategy. Viet Nam has recently achieved middle-income status, which means that grant-based and highly concessional lending is due to end in 2017. As such, Viet Nam must develop new and novel sources of financing to invest in green growth.

There is an insufficient enabling environment for the development, implementation and scale up of clean and energy efficient technologies. The current enabling environment does not promote the scale up of renewable energy, with low feed-in tariffs and subsidies on the electricity prices. This means that despite significant potential, especially within the solar and biomass sectors, renewable energy accounts for just 6% of total installed capacity.

Finally, rapid urbanization has had negative consequences in terms of green growth. Viet Nam's cities lack critical wastewater and public transport infrastructure, and are extremely vulnerable to climate change. Inadequate spatial planning has led to an ever expanding city center, and there is a lack of capacity for long-term, sustainable urban development approaches at the local level.

During the next five years, the Government of Viet Nam and GGGI will support delivery of the NDC, SDGs and GGGI's corporate strategy by working across three outcomes.

Outcome 1: Green growth objectives are mainstreamed into development planning processes and national financing arrangements

GGGI will work to mainstream green growth into the Socio-Economic Development Strategy and Plan, as well as roll out the Investment Guidelines for Green Growth. In addition, GGGI will work to strengthen an existing national financing vehicle, and partner with MPI and the Viet Nam Development Bank on greening their lending portfolios.

Outcome 2: Green energy uptake is increased through enhanced enabling environments and the development of bankable projects

This outcome will focus in the geothermal, waste-to-energy and solar sub-sectors, and work on strategic policy advice such as the necessary feed-in tariffs. GGGI will partner with ADB and GIZ to develop bankable projects.

Outcome 3: Green growth is integrated into Viet Nam's urban development strategies and bankable projects are developed

GGGI will develop a National Urban Green Growth Strategy, green master planning guidance for cities and a National Program on Green Urban Development. Bankable projects will be developed in infrastructure gaps such as urban wastewater.

1. Introduction to the Country Planning Framework

The Country Planning Framework (CPF) of the Global Green Growth Institute (GGGI) lays out the green growth objectives that GGGI's interventions aim to support Viet Nam in achieving. The CPF objectives are derived from organizational priorities that reflect GGGI's comparative advantage, and are in alignment with national goals of economic growth, poverty reduction, social inclusion and environmental sustainability. The CPF is thus a contextualized planning document for in-country programming.

The CPF objectives require the support of the national government, private sector and other partners, and is contingent on the CPF's adherence to the following key principles:

- Ownership – It is co-owned by the government and endorsed by the lead ministry that GGGI has an agreement with, in Viet Nam this is the Ministry of Planning and Investment (MPI);
- Mutual Accountability – It demonstrates commitment by GGGI and the government to collaborate and provide support in implementing the CPF;
- Alignment – It is aligned to national objectives and informed by the *GGGI Strategic Plan 2015-2020;*
- Leadership – Its formulation is jointly led by the country team and MPI.

GGGI has consulted extensively with green growth stakeholders in:

- Government – Ministries of: Planning and Investment, Natural Resources and Environment, Industry and Trade, Agriculture and Rural Development, Construction, and Transport; and provincial and municipal leaders;
- Financial institutions – World Bank, Asian Development Bank (ADB) and Viet Nam Development Bank (VDB);
- Development partners – United Nations agencies, bilateral agencies and/or embassies of Belgium, Denmark, France, Germany, Japan, Republic of Korea, Norway, Switzerland and the United States of America;
- Experts from civil society, the private sector and academia.

Consultations were held via bilateral meetings, a donor roundtable and a consultative workshop, hosted jointly by GGGI and MPI. See Annex B for a summary of the consultations.

The CPF presents the in-country strategy for the delivery of measurable results against the GGGI Results Framework, and aligns with national commitments under the Sustainable Development Goals (SDGs) and Viet Nam's Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC).

Box 1. About GGGI

GGGI was founded to support and promote a model of economic growth known as "green growth", which targets key aspects of economic performance such as poverty reduction, job creation, social inclusion and environmental sustainability.

GGGI envisions a resilient world achieved through strong, inclusive and sustainable green growth, and is dedicated to supporting the transition of GGGI member countries toward a green growth model. In pursuit of these goals, GGGI works with developing and emerging countries to design and deliver programs and services that demonstrate new pathways to pro-poor economic growth.

GGGI supports stakeholders through two complementary and integrated work streams—Green Growth Planning & Implementation and Knowledge Solutions—that deliver comprehensive products and services designed to assist in developing, financing and mainstreaming green growth into national economic development plans.

GGGI's interventions emphasize change in four priority areas considered to be essential to transforming countries' economies including energy, water, land use and green cities.

Headquartered in Seoul, Republic of Korea, GGGI also has representation in a number of partner countries.

2. Country Overview

Viet Nam is situated on the east coast of the Indochina Peninsula with a population of 90.7 million and a gross national income (GNI) of USD 171.9 billion in 2014.[1] Viet Nam has been one of the fastest growing economies in the world, averaging 6.4% from 2000 to 2014. This has resulted in the graduation to lower middle income country (MIC) status in 2011,[2] accompanied by increasing integration into regional and global economic and political structures.

Viet Nam has gone through a dramatic transformation from a centrally planned to a more market-oriented economy. Viet Nam's GNI per capita has increased from USD 130 in 1990 to USD 1,890 in 2014.[3] Viet Nam has faced challenges around macroeconomic stability including high inflation (18% in 2011, but reduced to 6.6% in 2013), trade and budget deficits, and the slow rate of equitization of state-owned enterprises. These are noted by the World Bank in its Ease of Doing Business report which ranks Viet Nam 90th out of 189.[4]

Viet Nam consists of over 53 ethnic groups, the Kinh predominates accounting for 86% of the population. Among the ethnic groups, six consist of more than 1 million people (Kinh, Tay, Thai, Muong, Mong and Khmer); and 14 ethnic groups have populations ranging from 100,000 to 1,000,000 people. All remaining ethnic groups have populations of less than 100,000 people, and several groups only comprise a few hundred people. The majority of Tay, Thai, Muong and Mong people live in the Northern Midland and Mountain areas, while most Khmer people live in the Mekong River Delta.[5]

1 World Bank, "World Data Bank: World Development Indicators – Viet Nam," 2014.

2 OECD, "DAC List of IDA Recipients," undated, http://www.oecd.org/dac/stats/documentupload/DAC%20List%20used%20for%202011%20flows.pdf.

3 World Bank, "GNI per capita, Atlas method (current US$)," http://data.worldbank.org/indicator/NY.GNP.PCAP.CD.

4 World Bank, "Ease of Doing Business in Vietnam," http://www.doingbusiness.org/data/exploreeconomies/vietnam/.

5 UNFPA, "Ethnic Groups in Viet Nam," December 2011, http://vietnam.unfpa.org/sites/asiapacific/files/pub-pdf/Ethnic_Group_ENG.pdf.

Table 1. Viet Nam at a glance

Total population, 2014	90,728,900
Total area (sq. km)	129,736,256
Forest cover (% of land area), 2012	40.7
Agricultural area (% of land area), 2013	35.1
GNI, Atlas method (current USD) in 2014	171.9 billion
GNI per capita, Atlas method (current USD), 2014	1,890 (Lower MIC)
Poverty headcount ratio at national poverty lines (% of pop.), 2012	17.2
Proportion of land-use certificates held by females, 2004, 2008	0.213, 0.198
Human Development Index, 2013	0.638 (121 of 187)
Environmental Performance Index, 2016	58.50 (131 out of 180)
CO_2 emissions intensity (metric tons per capita), 2011	2.0
GHG emissions (thousand metric tons CO_2 equivalent), 2010	
• Total (land use, land-use change and forestry (LULUCF) excluded)	266,049
• Total (LULUCF included)	246,831
• Energy	141,172
• Agriculture	88,355
• Industry	21,172
• Waste	15,352
• Transport	31,817
Share of renewable energy generation (% of total installed capacity), 2014	6.13
Percentage of population with access to improved water source, 2015	98
ND-GAIN Vulnerability Index, 2013	0.446 (106 of 182)

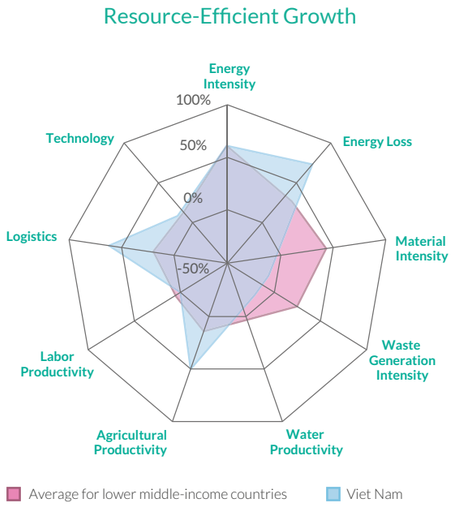
Sources: Government of Viet Nam, Notre Dame Global Adaptation Index, Organisation for Economic Co-operation and Development (OECD), United Nations Development Programme (UNDP), UNFCCC, World Bank, Yale University (see Annex A for full references)

2.1 Green Growth Performance Mixed

GGGI has undertaken a rapid indicative assessment of Viet Nam's recent performance in delivering green growth across three areas: resource efficiency, eco-friendliness and climate resilience (see Figures 1 to 3). This is called the Green Growth Potential Assessment (GGPA). The larger the shaded area on the web diagram, the better the performance. Viet Nam's performance is shown in blue and the average for lower middle-income countries is shown in pink. A description of the indicators and indexes used is provided in Annex C.

On resource-efficient growth (see Figure 1), Viet Nam is performing well across agricultural productivity, logistics and energy loss—but less favorably in material intensity, waste generation intensity and water productivity.

Figure 1: Viet Nam's resource-efficient growth in comparison with lower middle-income countries



On eco-friendly growth (see Figure 2), Viet Nam is performing well across a number of areas, especially in forest cover changes. Areas for concern are in air quality, soil health and fishing pressures.

Figure 2: Viet Nam's eco-friendly growth in comparison with lower middle-income countries

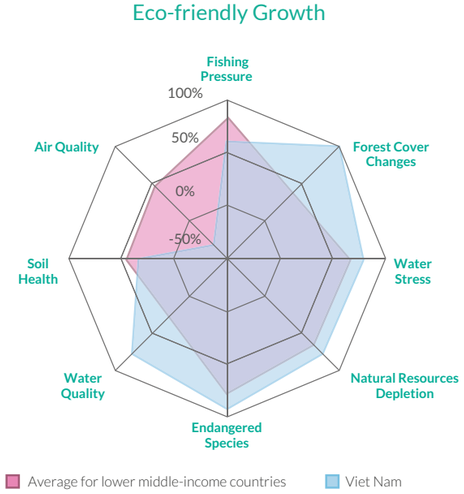
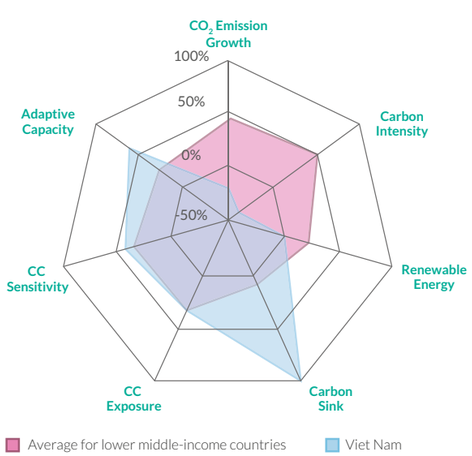


Figure 3 shows that the historical focus in adaptation over mitigation (which is supported by the findings in the Climate Public Expenditure and Institutional Review) has resulted in Viet Nam performing well in terms of adaptation, but poorly in terms of CO_2 emission growth, carbon intensity and renewable energy.

Figure 3. Viet Nam's climate resilient growth in comparison with lower middle-income countries



Taking all of these challenges together GGGI sees an important role to work with the Government of Viet Nam (GoV) to tackle waste production (both solid and wastewater), air quality, and the provision of renewable energy.

2.2 Political Shifts Resulted in Recent Economic Success

Since the ending of armed conflict in the 1970s, Viet Nam has seen consistent political stability, but during the 1980s faced high inflation, low production and economic inefficiencies; leading to food insecurity and climbing poverty rates.[6] In 1986, Viet Nam instituted a series of economic reforms known as *Đổi Mới* which moved the country from a centrally planned economy to a "socialist-oriented market economy".[7] This policy shift, along with the opening of the economy in the 1990s, resulted in Viet Nam's dramatic economic transformation leading to achieving MIC status in 2010.

2.3 Poverty Dramatically Reduced

Viet Nam has significantly reduced poverty, with the poverty headcount ratio falling from 49.2% in 1993 to 17.2% in 2012.[8] Within the space of 25 years, the country moved from one of the poorest nations to a lower MIC. In doing so Viet Nam has achieved most and in some cases surpassed a number of the Millennium Development Goals (MDGs), particularly the goals on extreme poverty reduction, education and gender equality.[9] Between 2006 and 2010 Viet Nam's GINI coefficient was 38.7,[10] which while near-median amongst low-income countries, may be vulnerable to deterioration during the next phase of growth.

From 2004–2014, Viet Nam was one of the largest recipients of Official Development Assistance (ODA) in the world, however ODA will decline with Viet Nam becoming a MIC. ODA supported Viet Nam to increase rural electrification from 14% in 1993 to nearly 100% in 2010, as well as provide access to safe drinking water, with over 92% of all households (and 89.5% of rural households) connected.[11] The decrease in ODA will be partly off-set by an increase in non-concessional loans from multilateral development banks.[12]

2.4 Market Diversification and International Trade Boosted Growth but Domestic Challenges Remain

Viet Nam's economic structure is diversifying as it develops. The service sector accounts for 43.3% of the total economy; industrial and construction 38.5%; and agricultural, forestry and aquatic products 18.1%.[13] The labor force is currently structured: 46.8% in agricultural, forestry and aquatic products; 32% in services; and 21.4% in the industrial and construction sector.[14] Agricultural products have ceased to be Viet Nam's most significant export; and telecommunications and petroleum products now rank as the country's top two export goods.[15]

Since the 1990s, Viet Nam has opened its economy and entered into a number of free trade agreements. After the normalization of relations with both China and the United States, Viet Nam steadily integrated into the world economy and joined the World Trade Organization in 2006. Bilateral trade with the United States was approximately USD 25 billion in 2012, USD 20 billion of which was exports.[16] Including agreements through the Association of Southeast Asian Nations (ASEAN), Viet Nam has entered into 15 trade deals, recently agreeing to free trade agreements with the European Union, Republic of Korea and the Trans-Pacific Partnership (TPP).[17]

Trade deals such as the TPP will be increasingly important for Viet Nam to avoid the "middle-income trap". As the least developed member of the TPP, Viet Nam is projected to

6 Q.H. Vuong et al., "The Entrepreneurial Facets as Precursor to Vietnam's Economic Renovation in 1986," *The IUP Journal of Entrepreneurship Development 8 (2011): 10-14.*

7 Ibid.

8 World Bank, "Poverty headcount ratio at national poverty lines (% of population)," http://data.worldbank.org/indicator/SI.POV.NAHC.

9 GoV, "Country Report: 15 Years Achieving the Viet Nam Millennium Development Goals," September 2015, http://www.vn.undp.org/content/vietnam/en/home/library/mdg/country-report-mdg-2015.html.

10 World Bank, "GINI index (World Bank estimate)," http://data.worldbank.org/indicator/SI.POV.GINI.

11 United Nations, "Viet Nam & the MDGs," http://www.un.org.vn/en/what-we-do-mainmenu-203/mdgs/viet-nam-and-mdgs-mainmenu-49.html.

12 MPI, United Nations and European Union, "Development Finance for Sustainable Development Goals in Middle-Income Viet Nam," 2014.

13 General Statistics Office of Viet Nam, 2010, 2011, 2012, 2013, 2014.

14 General Statistics Office of Viet Nam, 2010, 2011, 2012, 2013, 2014.

15 United Nations Data, "Viet Nam," http://data.un.org/CountryProfile.aspx?crName=Viet%20Nam.

16 USAID, "Country Development Cooperation Strategy for Vietnam 2014-2018," 2013.

17 ADB, "Asia Regional Integration Center: Free Trade Agreements," https://aric.adb.org/fta-country.

gain considerably in terms of exports and GDP growth.[18] Increasing investment in Viet Nam will be critical to growth and development goals when access to highly concessional International Development Association loans ends in 2017.[19]

Viet Nam has instituted market reforms to increase the role of the non-state sector in the economy. Although state-owned enterprises still figure prominently, Viet Nam's economic diversification is aimed at increasing efficiency and encouraging domestic private investment. Foreign direct investment has increased, but has historically focused on low value-added manufacturing. While this is good for employment and the economy, greater benefits are attainable through the technology and services sectors, which it should be noted, are growing parts of the economy in Viet Nam.[20] Further, Vietnamese businesses would benefit significantly if key banking reforms and better access to credit could be paired with increasing domestic demand.[21]

2.5 Inclusive Growth Essential

Gender inequality has decreased yet disparities still remain. The labor force participation rate is 82.5% for men and 73.5% for women. Women predominate in the electronics, garment and shoe-making industries where they represent 70-80% of the workforce. The wage gap between women and men is significant, with women in the formal sector earning 75% of men's earnings.[22] Women's wages are believed to be as low as 50% of men's in the informal sector. The number of female National Assembly Deputies is currently 24.2%, among the highest percentages of women in parliament in the region and above the global average of 21.7%. At the district and local level, however, women are seldom Chair of the Provincial People's Committee, with rates as low as 1.5%.[23]

Studies on women and men's attitudes toward women leaders have found that respondents would elect men as politicians and would choose men for highest positions.[24]

Ethnic minorities and rural populations need increased assistance in several development sectors. Across many MDGs, including education, poverty and health, ethnic minorities and the remote rural populations fare worse than the Kinh-majority[25] or urban counterparts. For example in 2012, the national poverty rate was 17.2%; 5.4% for urban versus 22.1% for rural; 9.9% for Kinh versus 59.9% for non-Kinh.[26] Gender inequality is also worse among ethnic minorities, with adolescent birth rates three times as high as Kinh's.[27]

Viet Nam is a young country with a growing and increasingly mobile population. Out of 90 million citizens, 23% are under 14 years old[28] and the median age is 29 years old.[29] The historical unemployment rate is one of the lowest in the world, averaging 2.4% between 1998 and 2015; and currently standing at 2.3%.[30] However, employment has been characterized by a lack of skilled labor force, which is holding back Viet Nam's manufacturing and high-tech sectors from moving up the value chain.

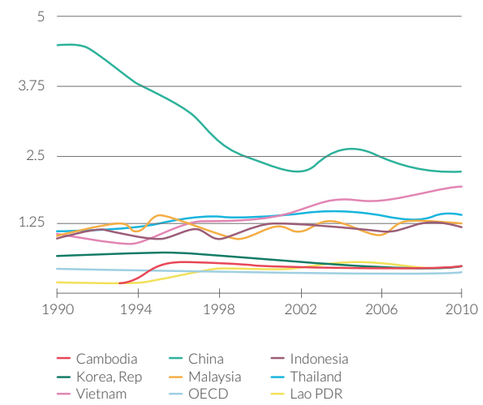
2.6 Key Socio-Economic Challenges Ahead

Unexploded ordinance (UXO) and dioxin contamination, a toxic of the defoliant Agent Orange remain an issue. Dioxin contamination is concentrated around the former demilitarized zone in the center of the country, especially Da Nang airport where Agent Orange was stored and loaded. At Da Nang airport the United States has established a decontamination program, however other sites remain. UXO is also concentrated around the former demilitarized zone, with the United States investing over USD 37 million to locate, remove and destroy UXO, as well as provide capacity building to the GoV.[31]

Urban populations are increasing at over 3% annually, which has brought green growth challenges.[32] Urban populations are primarily focused in Ha Noi and the Central (around Da Nang) and South-East (around Ho Chi Minh City) coasts of the country.[33] Estimates of urban populations are complicated by the fact that an estimated 15% of urban residents live in informal or illegal structures.[34] Rapid increases in motorized transport and a lack of public transport means Viet Nam's cities have some of the most polluted air in the world—the Environmental Performance Index ranks Viet Nam 170 out of 180 for air quality.[35] Lack of wastewater treatment infrastructure contributes to a water resources ranking of 124 out of 180.[36] These issues will be further compounded as the rate of urbanization is set to increase from 30% to 50% by 2030.[37]

Viet Nam's most recent national greenhouse gas (GHG) inventory reveals a 602% increase since 1990.[38] Moreover, emissions growth per unit of GDP has surpassed all other Asian developing countries except for China (see Figure 4).[39] Viet Nam's emission profile is dominated by growth in emissions from the power generation, transport, industrial and cement sectors. The burning of coal (which Viet Nam mines for domestic consumption and export) is a major contributor. Coal currently accounts for more than one-third (36%) of the electricity capacity, and by 2030, coal-fired power stations are expected to supply over half (56%) of the national electricity demand.[40] With over 98% of the population connected to the energy grid, 2030 demand is projected to grow at least 10% per year, while energy usage in transport and buildings will grow by over 5%.[41] The GoV has signaled support for the removal of fossil subsidies, and for both cost-recovery pricing for electricity and market-based pricing for coal.[42]

Figure 4. CO_2e emissions (kg) per 2005 USD of GDP, 1990 to 2010



Source: Low Emission Development Strategies Global Partnership, "LEDS GP Case Study: The Subnational Integration of the Viet Nam Green Growth Strategy (VGGS)," 2014, 3

2.7 Committed to Environmental Conservation yet Highly Vulnerable to Climate Change

Viet Nam's forests are rich with biodiversity, home to 10% of the world's mammal, bird and fish species, and with the highest rate of endemic species in the region. Viet Nam has two UNESCO Natural World Heritage Sites, eight UNESCO Biosphere Reserves and four ASEAN Heritage Parks.[43] To address the loss of both forest cover and biodiversity, Viet Nam has created over 100 protected areas, including the largest recognized biosphere in the world.[44] This resulted in overall

18 Bloomberg News, "TPP Trade Deal: Who Stands to Gain, Suffer in Asia-Pacific," October 6, 2015, http://www.bloomberg.com/news/articles/2015-10-06/tpp-trade-deal-who-stands-to-benefit-suffer-in-asia-pacific.

19 Thanh Nien News, "Growing Pains: Middle-income Vietnam set to lose cheap World Bank loans," October 9, 2015, http://www.thanhniennews.com/business/growing-pains-middleincome-vietnam-set-to-lose-cheap-world-bank-loans-52267.html.

20 MPI, United Nations and European Union, "Development Finance for Sustainable Development Goals in Middle-Income Viet Nam," 2014.

21 USAID, "Country Development Cooperation Strategy for Vietnam 2014-2018," 2013.

22 World Bank, "Viet Nam Country Gender Assessment," 2011, 10.

23 UNDP, *Women's Representation in Leadership in Viet Nam (2012),* http://www.undp.org/content/dam/vietnam/docs/Publications/31204_Women_s_Representation_in_Leadership_in_Viet_Nam.pdf.

24 Ibid.

25 The Kinh is the major ethnic group in Viet Nam, comprising 86% of the population. UNFPA, "Ethnic Groups in Viet Nam," December 2011, http://vietnam.unfpa.org/sites/asiapacific/files/pub-pdf/Ethnic_Group_ENG.pdf.

26 GoV, "Country Report: 15 Years Achieving the Viet Nam Millennium Development Goals," September 2015, 45-46, http://www.vn.undp.org/content/vietnam/en/home/library/mdg/country-report-mdg-2015.html.

27 Ibid., 82.

28 World Bank, "Population, ages 0-14 (% of total)," http://data.worldbank.org/indicator/SP.POP.0014.TO.ZS.

29 CIA, "The World Factbook," 2014.

30 General Statistics Office of Viet Nam, 2015.

31 USAID, "Country Development Cooperation Strategy for Vietnam 2014-2018," 2013.

32 World Bank, "Viet Nam Urbanization Review: Technical Assistance Report," 2011.

33 World Bank, "Viet Nam Urban Green Growth: A Strategic Review," 2014, 13.

34 D. Albrecht, H. Hocquard and P. Papin, *Urban Development in Viet Nam: The Rise of Local Authorities* (Agence Française de Développement, 2010).

35 Yale University, "Environmental Performance Index," 2016.

36 Ibid.

37 World Bank, "Viet Nam Urban Green Growth: A Strategic Review," 2014, 13.

38 Low Emission Development Strategies Global Partnership, "LEDS GP Case Study: The Subnational Integration of the Viet Nam Green Growth Strategy (VGGS)," 2014, 2.

39 Ibid., 3.

40 United States Energy Information Administration, "Coal, nuclear, and renewables expected to boost Vietnam's electricity capacity," August 3, 2015, http://www.eia.gov/todayinenergy/detail.cfm?id=22332.

41 Ibid.

42 World Bank, "Low Carbon Options Assessment," 2014, 33.

43 USAID, "Country Development Cooperation Strategy for Vietnam 2014-2018," 2013.

44 Shreya Dasgupta, "The largest biosphere reserve in Southeast Asia: Vietnam's success story or a conservation failure? Part 1," *Mongabay*, September 30, 2014,

forest cover increasing by 2.3% per year from 1990 to 2010.[45] The current share of land with forest coverage is 40.7%.[46]

Viet Nam is highly vulnerable to climate change, with 10.8%[47] of its population to be affected. The Mekong Delta is one of the world's three most vulnerable deltas to sea level rise, which is estimated to be 30cm by 2050.[48] Viet Nam is highly vulnerable to floods, droughts, saltwater intrusion (impacting on water availability), landslides and typhoons, and by 2100 annual costs to households could reach VND 62 million (2010 prices), or nearly 1.5 times per capita GDP.[49] Between 2001 and 2010, estimates of damage caused by natural disasters were approximately 1.5% of annual GDP.[50] Further, unchecked urban and industrial encroachment into rural areas is putting stress on soil and water resources, while agricultural runoff threatens depleted coastal mangroves.[51]

2.8 Strong Governance Key to Deliver Green Growth

MPI is the focal point for green growth coordination and implementation, whereas the Ministry of Natural Resources and Environment (MONRE) has responsibility for climate change. MPI leads and coordinates with the Ministry of Finance (MOF) and other relevant stakeholders to identify and allocate domestic and external financial resources for green growth activities, with the Climate Finance Task Force in MPI acting as the National Designated Authority to the Green Climate Fund (GCF). MONRE leads and coordinates all climate change related activities in Viet Nam, for example the development and implementation of the NDC.

Viet Nam is a single-party socialist republic with supreme governing authority vested in the National Assembly. Legislative powers reside in the unicameral National Assembly, with 498 members and elected every five years. The President, who is the head of state and the Prime Minister, who is the head of government, are eligible for two five-year terms. Parliamentary elections were held in May 2016, and a new President and Prime Minister were appointed.

People's Committees of provinces and centrally managed cities are responsible for formulating programs and directing the implementation of the national strategies. Municipalities in Viet Nam are divided in a tiered hierarchy, with the largest cities (Ha Noi, Ho Chi Minh, Can Tho, Da Nang and Hai Phong) falling under direct central control and enjoying greater authority, akin to a province. Secondary cities are governed by the provinces and ranked into five tiers depending on factors such as population, infrastructure and economy. Cities are therefore encouraged to increase urban area and rate of urbanization, as higher tiered status brings greater authority, autonomy and financial resources.

http://news.mongabay.com/2014/09/the-largest-biosphere-reserve-in-southeast-asia-vietnams-success-story-or-a-conservation-failure-part-i/.

45 Mongabay, "Vietnam Forest Information and Data," http://rainforests.mongabay.com/deforestation/2000/Vietnam.htm

46 MONRE, *The Initial Biennial Updated Report of Viet Nam to the United Nations Framework Convention on Climate Change* (Hanoi, 2014), 24, http://unfccc.int/resource/docs/natc/vnmbur1.pdf.

47 Susmita Dasgupta et al., "The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis," World Bank Policy Research Working Paper 4136, February 2007, 28, https://openknowledge.worldbank.org/bitstream/handle/10986/7174/wps4136.pdf.

48 A. Smajgl et al., "Responding to rising sea levels in the Mekong Delta," *Nature Climate Change* 5 (2015): 167–174.

49 MONRE, *Viet Nam's Second National Communication to the United Nations Framework Convention on Climate Change* (Hanoi, 2010), 70, http://unfccc.int/resource/docs/natc/vnmnc02.pdf.

50 Decision No. 2139/QD-TTg on the approval of the National Strategy on Climate Change, issued by the Prime Minister on December 5, 2011.

51 ADB, "Viet Nam Environment and Climate Change Assessment," 2013.

3. National Priorities

Policymaking in Viet Nam is set by the central government and places emphasis on maintaining economic and employment growth. The 10-year development plan, called the Socio-Economic Development Strategy (SEDS), sets out the long-term development goals. Two five-year medium-term plans—the SEDPs and annual SEDPs—lay out specific areas for action to achieve the goals set in the SEDS.[52] Viet Nam's policy framework and institutional arrangements can be overlapping, lack sufficient coordination, and suffer from capacity gaps depending on the stakeholder.[53] However, the elements of a comprehensive approach to addressing sustainable economic development are in place, with strong policy signals that the GoV intends to embrace green growth.[54]

Viet Nam's national priorities on development and green growth are enshrined in the following documents:

- Socio-Economic Development Strategy 2011-2020;[55]
- Socio-Economic Development Plan 2016-2020;
- Viet Nam Sustainable Development Strategy 2011-2020 (SDS);[56]
- Viet Nam National Strategy on Climate Change (VSCC);[57]
- Viet Nam National Green Growth Strategy 2011-2020 (VGGS);[58]
- Viet Nam National Green Growth Action Plan 2014-2020 (VGGAP);[59]
- Viet Nam's NDC.

An analysis of the main policies and programs of the GoV will provide the basis for establishing the GGGI Country Planning Framework for 2016-2020 in Viet Nam.

3.1 Analysis of Viet Nam's Policies and Programs on Green Growth

3.1.1 Socio-Economic Development Plan 2016-2020

The SEDP describes how Viet Nam will achieve the SEDS vision for the period of 2016-2020. The SEDP recognizes the importance of Viet Nam's growing cities, and the increased environmental pressures of development and climate change. Among four major objectives, the SEDS aims to "integrate environmental protection and green economic development within economic growth, including for Viet Nam's cities".[60] The SEDP aims for three breakthrough areas on: (1) improving market economy regulations; (2) developing human resources skills; and (3) building an infrastructure system focusing on transport and large urban infrastructure.[61]

52 Ajoy Datta and Pham Lan Huong, "Not just a beautiful flower? Knowledge, information and economic policymaking in Vietnam," Overseas Development Institute, May 2013, 10. http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8429.pdf.

53 Ibid., 57-59.

54 Global Green Growth Forum, "Vietnam joins 3GF as Official Partner Country," November 10, 2015, http://3gf.dk/en/news/newsdisplaypage/?newsID=6B94BFDF-51C0-44ED-B70B-E7E775B532F8.

55 Communist Party of Viet Nam National Congresses approved Viet Nam Socio-Economic Development Strategy 2011-2020 on March 17, 2011.

56 Decision No. 432/QD-TTg on the approval of the Viet Nam National Sustainable Development Strategy 2011-2020, issued by the Prime Minister on April 12, 2012.

57 Decision No. 2139/QD-TTg on the approval of the National Strategy on Climate Change, issued by the Prime Minister on December 5, 2011.

58 Decision No.1393/QD-TTg on the approval of the Viet Nam National Green Growth Strategy 2011-2020, issued by the Prime Minister on September 25, 2012.

59 Decision No. 403/QD-TTg on the approval of the National Green Growth Action Plan of Viet Nam 2014-2020, issued by the Prime Minister on March 20, 2014.

60 SEDS 2011-2020, Sec 3.2.a.

61 Tu Hoang, "VDPF 2015 to discuss institutions for market economy," *The Saigon Times*, December 1, 2015, http://english.thesaigontimes.vn/44374/VDPF-2015-to-discuss-institutions-for-market-economy.html.

It has set targets that inform the ministerial and sectoral strategies, on curbing emission growth, increasing energy efficiency and clean energy, and greening Viet Nam's rapid urbanization. It is estimated that 45% of Viet Nam's population will be urban by 2020. Plans to address these challenges include markets forces (e.g. carbon pricing) to assist in the transition to sustainable energy.[62]

Sectoral policies address the impacts of climate change and rapid emissions growth. Both are critical threats to Viet Nam as they put at risk the gains made in poverty reduction in urban centers and economic development in rural areas. GHG abatement targets and priorities tend toward the "low-hanging fruit" options, such as energy efficiency, technology for renewable energy, and reduced deforestation and reforestation activities.

3.1.2 Viet Nam National Strategy on Climate Change

In December 2011, the Prime Minister approved the VSCC. The strategy envisions that from 2013 to 2025, Viet Nam will focus on industrialization, balancing economic growth against climate change goals. After 2025, GHG emission reduction will become a criterion of economic development processes, with Viet Nam becoming a low-carbon economy, resilient and adaptive to climate impacts.

3.1.3 Viet Nam National Green Growth Strategy 2011-2020

In September 2012, the Prime Minister approved the VGGS, affirming that green growth will become the main driver of Viet Nam's economic development. The objectives of the VGGS are:

- Increased macroeconomic efficiency;
- Deployment of technologies to adapt to climate change and reduce GHG emissions by 1.5-2% a year until 2030;
- Improved living standards through green economy actions in industry, infrastructure, employment and natural capital.

These objectives will be measured by success in the following target areas:

1. Reduce the GHG emissions intensity by 8-10% by 2020; promote the use of clean and renewable energy to target the reduction of energy consumption per unit of GDP by 1-1.5% per year; and reduce GHG emissions from energy activities by 10-20%;
2. Promote green production by more efficient use of resources and new technologies based on: (1) implementation of a clean industrialization strategy via reviewing and adjusting sector master plans; (2) development of green industry and agriculture technologies; (3) investment in natural capital; and (4) prevention and treatment of pollution (e.g., 60% of grade III cities with wastewater treatment facilities is targeted);
3. Stimulate green lifestyles and promote sustainable consumption (e.g. 50% of large and medium cities meet green urban standards, and public transportation accounts for 35-45% of trips in these cities).

Although the intensity reduction targeted by 2020 seems integrated in the government's "business-as-usual" scenario, the target yearly reduction between 2020 and 2030 is definitely ambitious.

3.1.4 Viet Nam National Green Growth Action Plan 2014-2020

The March 2014 Green Growth Action Plan provides guidelines and priority activities to be carried out at the central and local levels to achieve VGGS goals. A total of 66 activities in 12 groups, include:

- Mainstreaming green growth into SEDPs and sectoral master plans;
- Fostering enterprise development and public-private partnerships;
- Developing new sources of clean energy;
- Improving urban areas through green building and sustainable transport;
- Increasing finances, including access to international finance, and the establishment and scale up of a facility.

62 Ibid.

3.1.5 Viet Nam's Nationally Determined Contribution

The GoV submitted its NDC on 30 September 2015 and committed to the objectives of the Paris Agreement. The NDC and the VGGS use 2010 as the reference year to forecast emissions scenarios in 2030. Viet Nam emitted 246.8m tCO_2e in 2010 — the business-as-usual scenario for 2030 is 787.4m tCO_2e.

The unconditional target equates to 724.4m tCO_2e emitted in 2030 — a three-fold increase from 2010 levels. The conditional target represents an emissions scenario for 2030 of 590.5m tCO_2e, or an increase of about 230%. The 25% absolute reduction in the conditional pledge is roughly equivalent to the 2030 target in the VGGS.

Table 2. Viet Nam's NDC targets[63]

Unconditional Targets by 2030	Conditional Targets by 2030
8% reduction in overall GHG emissions	25% reduction in overall GHG emissions
20% decrease in emissions intensity (GHG:GDP)	30% decrease in emissions intensity (GHG:GDP)
Increase in forest cover to 45%	

The NDC, like the VSCC and VGGS, opts for a conservative approach and relies on "win-win" GHG abatement actions. Significantly, the targets contained are largely consistent with those of the VSCC and VGGS. This is a key policy signal that the GoV is increasingly aligning climate change and green growth objectives.

The NDC highlights several priority actions, including:

- Increased access to sources of finance;
- The application of new and advanced clean energy technologies;
- The introduction of sustainable urban development and urban infrastructure.

63 The different reference years makes direct comparisons difficult, but the following differences in targets among similar nations are worth noting: the Philippines' NDC has a conditional target of a 60% reduction from 2000 levels; and Thailand's NDC calls for an unconditional target of 20% reduction from 2005 levels.

3.1.6 National Financing Vehicles

The GoV has established a number of national financing vehicles to support the implementation of green growth.

Table 3 provides a summary of these national financing vehicles.

Table 3. Selected national financing vehicles in Viet Nam

National Financing Vehicles	Year	Objectives	Current Fund Size	GoV Lead	Development Partners
Green Growth Strategy Facility	2014	• Mobilize national and international public and private financing • Strengthen the programmatic alignment of domestic and international finance sources in a harmonized framework to align national climate and green growth objectives • Provide financing opportunities with the goal of scaling up implementation in priority sectors and locations	EUR 5.5 million (USD 6.1 million)	MPI	Belgium Development Agency
Viet Nam Environment Protection Fund	2014	• Provide finance for nature and biodiversity protection • Prevent, protect and overcome pollution and deterioration of the natural environment • Limit national, multi-section, multi-region environmental risks, and resolve comprehensive environmental problems	VND 1,000 billion (USD 44.6 million)	MONRE	N/A
Viet Nam Climate Innovation Centre	2015	• Assist 48 clean-tech businesses within its first three years of operations • Expand access to new and improved climate-smart products and services to over 1,700 households	USD 4.18 million	Ministry of Science and Technology	Australia, United Kingdom and the World Bank Group
The Green Credit Trust Fund	2007	• Promote small and medium-sized enterprises' long-term investments in cleaner technology	USD 5 million	Viet Nam Cleaner Production Center	Swiss State Secretariat for Economic Affairs

4. GGGI's Engagement in Viet Nam

4.1 Engagement to Date and Key Results

Cooperation between Viet Nam and GGGI began in 2011. Viet Nam ratified the GGGI Establishment Agreement on 12 December 2012. In February 2015, GGGI established a country office embedded within MPI. Collaboration to date has focused on green cities, water and green growth investment guidance.

GGGI partnered with the Viet Nam National Mekong Committee (VNMC) to implement the Water and Green Growth in the Mekong Delta Project. The work is funded as part of a multi-country project of the Swiss Agency for Development and Cooperation. In 2014, GGGI convened an international conference on green growth in the Mekong Delta, the first of its kind, and led the development of a report on how to deliver green growth in the economically significant Mekong region. The conference and report have provided an improved understanding of the critical importance of urban wastewater management in the Mekong region. The work will include the implementation of green growth policy and investment options for urban wastewater management in Tien Giang province in the Mekong Delta.

Building on the work with VNMC, GGGI initiated the development of a bankable project in urban wastewater for Ben Tre City in the Mekong Delta. GGGI partnered with ADB to design a feasibility study to unlock an ADB loan of up to USD 25 million to implement urban wastewater management in Ben Tre. Increases in urban population, rising sea levels and increasing flooding demand attention to the insufficient and unsustainable infrastructure. The project kicked off in 2015.

GGGI developed planning tools to integrate green growth into Viet Nam's urbanization pathway. For the City of Da Nang, a major seaport and tourist destination, GGGI partnered with UN-Habitat to develop a Green Growth City Development Strategy[64] to orient urban development toward green growth objectives.

At the national level, the Urban Green Growth Action Project assisted the Ministry of Construction (MOC) to produce a set of indicators that are aligned with urban development planning processes to track the implementation of green growth in Viet Nam's cities.

GGGI conducted a mapping of urban green growth actions by all stakeholders to highlight areas for implementation, and improve coordination and knowledge sharing among Viet Nam's cities.

GGGI provided a series of interactive trainings for municipal decision makers on green city development and sustainable transportation solutions; and offered technical inputs to the Urban Green Growth Week, a key forum that linked national policy support from GGGI to sub-national stakeholders.

GGGI initiated a partnership with UNDP to develop Investment Guidelines for Green Growth for MPI, which have already been used to incorporate green growth into the SEDP. The guidelines provide a customized methodology for screening and prioritizing investment opportunities, and for mobilizing public and private finance. GGGI and UNDP worked with MPI and other national stakeholders to design and disseminate the guidelines through consultative workshops and trainings to enhance their applicability and utility.

64 GGGI and UN-Habitat, "Green Growth City Development Strategy for Da Nang," 2014.

4.2 GGGI's Comparative Advantage

GGGI's support on urban green growth is already well established and serving a clear need. Urbanization is an engine for Viet Nam's economic growth, but also a driver of some of its greatest environmental and social consequences. GGGI's past experience and current portfolio will be leveraged in new partnerships with Ben Tre and Tien Giang provinces. Further, MOC has expressed an interest in GGGI lending technical assistance to mainstream green growth into a new World Bank effort—a USD 270 million Results-Based National Urban Development Program in the Northern Mountains Region, one of the most underdeveloped regions in Viet Nam.[65] This has been discussed with the World Bank mission in Viet Nam who welcomed GGGI's involvement in this area.

GGGI's unique mission and being embedded within MPI means it can be a valuable and trusted advisor. Viet Nam's green growth policy landscape requires mainstreaming and coherence to ensure ambitious goals are met. GGGI can provide that coherence and deliver green growth working at both the national level, through high-level strategic advice, and provincial level, through implementation of green growth.

GGGI can unlock the large scale finance required to deliver green growth. By bridging the public and private sectors, and through the Inclusive Green Growth Partnership (see Box 2), GGGI can develop bankable projects to access numerous credit lines that are best suited to Viet Nam to enable the implementation of green growth across numerous sectors.

Box 2. Inclusive Green Growth Partnership

The Inclusive Green Growth Partnership, is a new collaboration with top multilateral development banks and United Nations regional economic and social commissions, launched at COP-21 on December 7, 2015. This partnership will leverage GGGI's technical expertise to assist multilateral development banks and funds in identifying green growth opportunities and investments that promote inclusiveness, shared prosperity and equitable growth.

In addition to GGGI, the founding members are:

Multilateral Development Banks/Funds

- Asia Development Bank
- African Development Bank
- Inter-American Development Bank

United Nations Regional Economic and Social Commissions

- United Nations Economic and Social Commission for Asia and the Pacific
- United Nations Economic Commission for Africa
- United Nations Commission for Latin America and the Caribbean
- United Nations Economic and Social Commission for Western Asia

Through this partnership GGGI will work with ADB in Viet Nam to develop a bankable project for Ben Tre to access an ADB loan to implement urban wastewater management. GGGI will also look for other opportunities with ADB, in either urban, transport or energy sectors, to further develop bankable projects. Additionally, GGGI will look to partner with the United Nations Economic and Social Commission for Asia and the Pacific to deliver green growth in Viet Nam.

GGGI's experience in renewable energy can support a clear national priority. GGGI has been requested by MPI, MONRE and the Ministry of Industry and Trade to support the development of green energy resources.[66] Development banks and large bilateral agencies have assisted Viet Nam to build initial renewable energy capacity in the hydropower and wind sectors. UNDP and GIZ have supported policy frameworks on ending fossil fuel subsidies and a feed-in tariff for wind power, but there remains massive renewable energy potential. Sub-sector-specific support is necessary to bring a diversified mix of renewable energy sources to Viet Nam's energy grid. Enhanced policy frameworks at the national and sub-national level must fully integrate green growth objectives, and further pipelines of investments need to be developed.

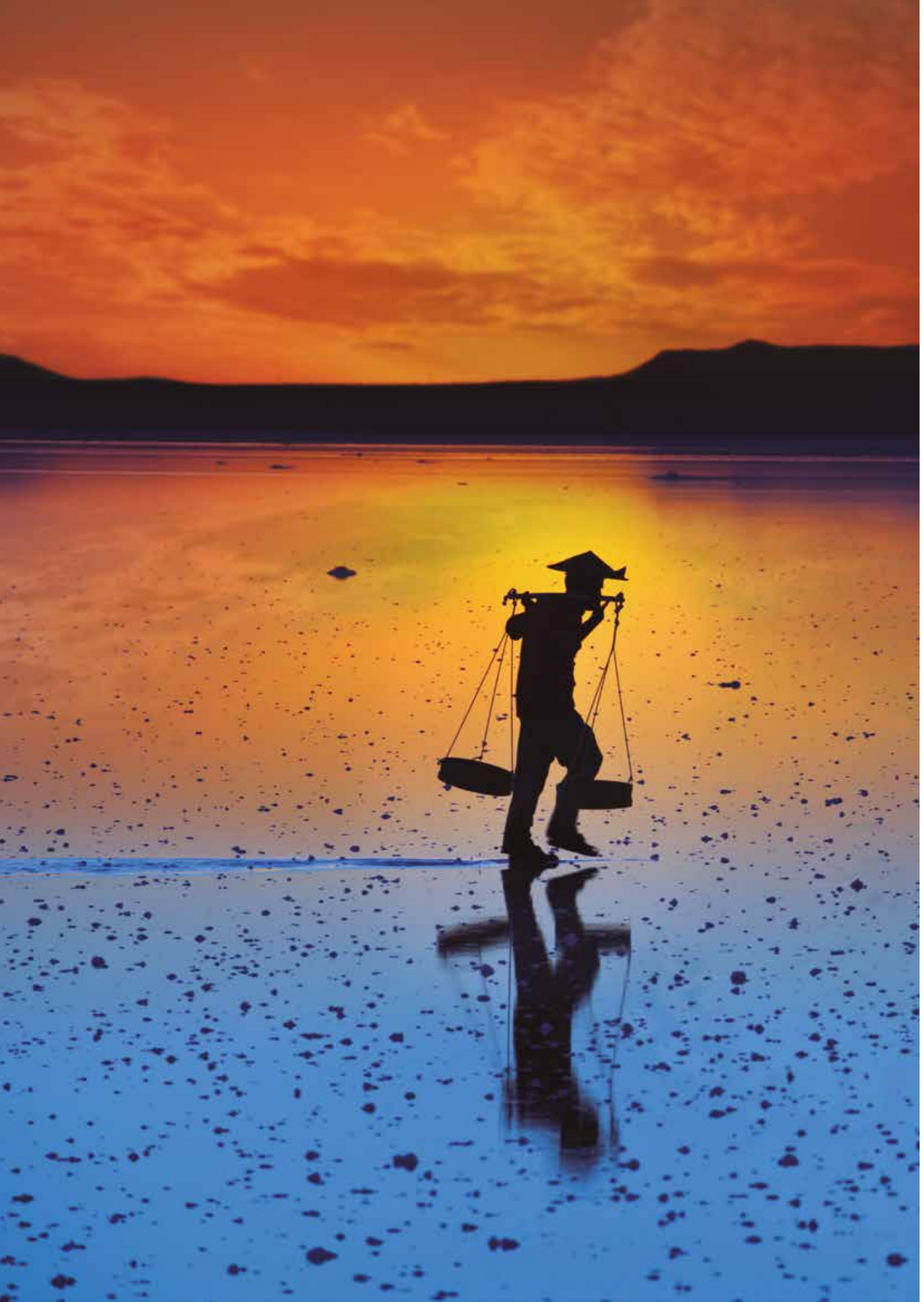
GGGI can leverage its experience in designing and scaling up national financing vehicles in Viet Nam. GGGI has shown the ability to design, establish and capitalize national financing vehicles that respond to development priorities, while assisting the transition to a green economy. This has been shown through GGGI's work with Ethiopia's Climate Resilient Green Economy Facility and Rwanda's Environment and Climate Change Fund.

GGGI's support is cross-sectoral and builds on the work of development partners to leverage the benefits of green growth across the entire economy. Viet Nam has long been an attractive destination for development support. ADB, GIZ, United Nations agencies and the World Bank have partnered with Viet Nam to implement many needed structural market reforms and upgrade national water, energy and transport infrastructure. Norway has assisted Viet Nam's efforts to reduce GHG emissions through the expansion of forest carbon sinks. The United States Agency for International Development (USAID), Belgian Technical Cooperation and Korea International Cooperation Agency have worked on the policy and institutional environments of VGGS implementation. The loan portfolios of ADB and the World Bank run into the billions of dollars. The Agence Française de Développement and Japan International Cooperation Agency (JICA) have partnered with the World Bank on a multi-year Strategic Program to Respond to Climate Change to enhance resilience in coastal zones and agriculture.

GGGI's assistance is best used catalytically, working on key policy areas at the national level, connecting stakeholders to sources of finance, bringing in the private sector, and replicating success at the sub-national level.

65 World Bank, "Results-Based National Urban Development Program in the Northern Mountains Region," 2014.

66 Meeting with VM Phuong, October 2015; and GGGI–MPI CPF consultative workshop, Hanoi, November 27, 2015.



5. Country Planning Framework Analysis

The CPF has been developed in partnership with MPI and other government stakeholders, as well as non-government stakeholders. It responds to national priorities and identifies gaps in current green growth activities, based on the objectives laid out in critical policy documents at the national and international levels, including the VGGS, NDC and SDGs. GGGI has mapped the areas of synergy between these plans and the *GGGI Strategic Plan 2015-2020* to identify the highest priority areas for green growth intervention. Together with the stakeholders in the government, development agencies and civil society, GGGI has identified, screened and validated its key strategic areas of intervention. This has been achieved through open dialogue and internal assessments on priority setting and results programming, including a series of bilateral meetings, roundtable discussion, and a consultative workshop.

Viet Nam has laid a strong foundation for green growth but some challenges remain. These can be seen in Table 4 but include: rapid urbanization, vulnerability to climate and energy shocks, and ambition to address development issues with sustainability as a priority. A donor mapping showed that development partners like ADB, GIZ, United Nations agencies and the World Bank, as well as donors such as JICA, USAID and others have partnered with Viet Nam to tackle large infrastructure, transport and energy efficiency projects. The consultative process brought forth these areas of implementation and informed the analysis of GGGI's comparative advantage within the context of green growth in Viet Nam.

Table 4. Low-carbon development advantages and challenges in Viet Nam[67]

Advantages	Challenges
• Government ability to mobilize action on high-priority issues; • The advantage of being a relative late-comer; • Potential to avoid lock-in effects of higher levels of urbanization in the future; • Planned generation capacity additions in the next two decades that are four to five times existing capacity offers huge opportunity for emissions reductions if coal is replaced; • Significant international support for low-carbon development measures.	• Distorted fuel prices; • Weak incentives for environmental protection; • Lack of clarity on economic and environmental trade-offs; • Weak monitoring and enforcement of environmental standards, especially at the local level; • Weak institutional and administrative capacity; • Financing constraints.

67 Adapted from World Bank, "Exploring a Low-Carbon Development Path for Vietnam," 2014, 85.

In close consultation with the government and development partners, GGGI, building on outputs delivered over the last three years, has identified four critical threats to achieving Viet Nam's green growth objectives:

- Institutional arrangements and planning processes are overlapping, not optimally coordinated or lack sufficient green growth mainstreaming;
- Lack of finance at scale for green growth investments inhibits sustainable development and encourages "brown growth";
- Insufficient enabling environment for the development, implementation and scale up of clean and efficient energy technologies;
- Rapid urbanization has had negative consequences in terms of green growth.

These areas are highlighted in national priority documents. By addressing these issues, GGGI will enhance implementation of green growth actions, and increase the likelihood of successful achievement of CPF outcomes and outputs.

5.1 Institutional Arrangements and Planning Processes are Overlapping, Not Optimally Coordinated or Lack Sufficient Green Growth Mainstreaming

Policy gridlock leads to conflicts between stakeholders and sows institutional confusion as to where responsibility actually resides. For example, the VGGS and VSCC fall under the auspices of the National Committee on Climate Change, but the National Sustainable Development Strategy is coordinated by the National Council for Competitiveness Improvement and Sustainable Development. In the urban sector, MOC, MONRE, or local decision makers in the People's Committees may legitimately claim authority over a single environmental quality issue. This creates a lack of inter-ministerial and cross-sectoral coordination that an issue like green growth demands. With inadequate VGGS integration into national development planning, competing mandates and policy gaps emerge. Many studies and GoV documents call for assistance on the issues of policy coherence, coordination and institutional strengthening.[68]

There are different and incompatible targets and benchmarks in the legislation, policies and strategies on green growth action. Depending on the policy, benchmarking for progress may be set for 2020, 2030 or 2050.[69] Similarly, Viet Nam's NDC and VGGS list different goals for emissions reductions. Even intimately-linked targets, such as the National Target Program for Energy Efficiency and those on managing GHG emissions and carbon markets (Decision no. 1775/QD-TTg)[70] are not aligned with the VGGS targets.[71] Policy documents also refer to vague or undefined benchmarks. Without improved policy coherence, success in implementing Viet Nam's ambitious agenda will be limited, and securing financial resources, whether from the public or private sector, will prove increasingly difficult.

A focus on strategies over projects has meant a slow start for green growth implementation. The GoV has made a number of commitments to tackling climate change and implementing green growth across national and sectoral strategies. However, this has not translated into developing the necessary pipeline at the provincial level for implementation. This can be seen across a number of sectors crucial in Viet Nam, including energy, wastewater and transport. This was flagged as a key area for GGGI engagement in discussions held with provincial and municipal leaders who have requested to partner with GGGI (including Ben Tre, Dien Ban, Thai Nguyen, Tien Giang and Tra Vinh).

68 MONRE, *Viet Nam's Second National Communication to the United Nations Framework Convention on Climate Change* (Hanoi, 2010), 128, http://unfccc.int/resource/docs/natc/vnmnc02.pdf; MPI, "Financing Viet Nam's Response to Climate Change: Smart Investment for a Sustainable Future (CPEIR)," April 2015, 17-18; and ADB, "Viet Nam Environment and Climate Change Assessment," 2013, 12.

69 ADB, "Viet Nam Environment and Climate Change Assessment," 2013, 10.

70 Decision No. 1775/QD-TTg on the approval of project of greenhouse gas emission management; management of carbon credit business activities to the world market, issued by the Prime Minister on November 21, 2012.

71 MPI, "Financing Viet Nam's Response to Climate Change: Smart Investment for a Sustainable Future (CPEIR)," April 2015, 17.

5.2 Lack of Finance at Scale for Green Growth Investments Inhibits Sustainable Development and Encourages "Brown Growth"

Viet Nam has made progress in attracting climate finance, but more must be done given the scale of the challenge. Estimated to cost at least USD 30 billion,[72] VGGS implementation will demand a significant increase in current financing levels. Due to Viet Nam's MIC status, from 2017, ODA grants and highly concessional loans will cease, which could lead to the middle-income trap. According to a 2015 study by Bloomberg New Energy Finance (BNEF), investment in renewable energy has fallen by over half between 2013 and 2014, a continuation of a downward trend.[73] The study stated that this is the result of high project costs, policy risk and steep financing rates. Constructing an enabling policy environment will be critical to Viet Nam's ability to access sources of affordable finance for green growth such as the GCF.

Viet Nam must develop new sources of finance to pay for green growth investments. Co-financing, domestic sources and private sector flows will play a larger role in how Viet Nam pays for lowering its emissions moving forward. In 2014, the World Bank estimated that from 2010 to 2030, Viet Nam would face an incremental cost of 1% of GDP to move to a low-carbon pathway commitment. Current expenditure amounts to only about 0.1% from the five line ministries measured in Viet Nam's recent Climate Public Expenditure and Institutional Review (CPEIR).[74] The 2015 BNEF study estimated total investment for clean energy since 2009 was only USD 2.1 billion, despite significant potential.[75] The CPEIR recommended climate and green growth policy alignment as one way to ensure finance is flowing. It also highlighted the need for facilities with measurement, reporting and verification capacities to track progress and create opportunities to leverage external funds.[76] Viet Nam has begun to tackle this with the establishment of the Green Growth Strategy Facility.

72 Tu Hoang, "US$30 billion needed for climate change, green growth," *The Saigon Times*, May 25, 2015, http://english.thesaigontimes.vn/41033/US$30-billion-needed-for-climate-change-green-growth.html.

73 BNEF, "Climatescope 2015: Vietnam," http://global-climatescope.org/en/country/vietnam/#/details.

74 MPI, "Financing Viet Nam's Response to Climate Change: Smart Investment for a Sustainable Future (CPEIR)," April 2015, 18.

75 BNEF, "Climatescope 2015: Vietnam," http://global-climatescope.org/en/country/vietnam/#/details.

76 MPI, "Financing Viet Nam's Response to Climate Change: Smart Investment for a Sustainable Future (CPEIR)," April 2015, 25.

5.3 The Enabling Environment for the Development, Implementation and Scale Up of Clean and Efficient Energy Technologies is Insufficient

Viet Nam has developed abatement policies and targets, but lacks strong clean energy investment. Once active in the carbon markets, [77] investment in Viet Nam in 2014 for clean energy was just USD 67 million, down from USD 314 million in 2012 and USD 165 million in 2013.[78] Despite significant potential, renewable energy accounts for just 6% of total installed capacity—the vast majority of which is small-scale hydropower.[79] Viet Nam has three Nationally Appropriate Mitigation Actions under development: (1) energy efficiency in buildings; (2) biogas; and (3) wind.[80] The country has made progress on issues surrounding land use and REDD+—being both a United Nations Reducing Emissions from Deforestation and Forest Degradation (UN-REDD) partner country and a member of the Forest Carbon Partnership Facility.[81]

Planning and investment are urgently required to avoid additional coal-fired generation capacity. In Viet Nam, its GHG to GDP ratio is increasing and has surpassed all other Asian countries except for China (whose rate is falling).[82] Emissions growth is fueled by overreliance on domestically produced coal—in a single year, Viet Nam increased coal consumption by 21% (2013 to 2014).[83] This increase in the burning of coal comes with significant negative impacts on climate and green growth objectives.[84] However, the World Bank has shown that if planning and policy alignment begins as soon as possible, switching to a low-carbon pathway is cost-effective in the

77 GoV, "Intended Nationally Determined Contribution of Viet Nam," 2015, 2, http://www4.unfccc.int/submissions/INDC/Published%20Documents/Viet%20Nam/1/VIETNAM'S%20INDC.pdf.

78 BNEF, "Climatescope 2015: Vietnam," http://global-climatescope.org/en/country/vietnam/#/details.

79 Ibid.

80 NAMA Database, "Vietnam," December 7, 2011, http://www.nama-database.org/index.php/Vietnam.

81 UN-REDD Programme, "Viet Nam," http://www.unredd.net/index.php?option=com_country&view=countries&id=40&Itemid=599.

82 Low Emission Development Strategies Global Partnership, "LEDS GP Case Study: The Subnational Integration of the Viet Nam Green Growth Strategy (VGGS)," 2014, 3.

83 United States Energy Information Administration, "Coal, nuclear, and renewables expected to boost Vietnam's electricity capacity," August 3, 2015, http://www.eia.gov/todayinenergy/detail.cfm?id=22332.

84 ADB, "Viet Nam Environment and Climate Change Assessment," 2013, 3.

long term.[85] GoV's willingness to remove coal subsidies can only do so much—the deployment of clean energy and energy efficiency technology provide the pathway to a sustainable energy future.

Viet Nam should explore developing a wide range of clean energy technologies. Viet Nam's power generation mix is 6% renewable. BNEF estimates that hydropower accounts for the vast majority of renewable energy at 98% (1.69 gigawatts (GW)).[86] That reliance on hydropower is increasingly fragile in a world of climatic variations in river flow and geopolitical tensions, as some 60% of Viet Nam's river flow originates from outside its borders.[87] Finance is a key shortcoming as the BNEF study indicates, and with energy issues spread across the industrial, transport and buildings sectors, tackling this problem requires an integrated approach to ensure finance and technology are available for both upstream and downstream actors.

There currently exists an unfavorable enabling environment for the mass scale up of all renewable energy technologies in Viet Nam. Electricity of Viet Nam has a near monopoly on the power sector, from generation through to retail, and coupled with government subsidies on the cost of electricity (costing between USD 1.2 billion and USD 4.49 billion a year), have discouraged investment.[88] Further, the current feed-in tariffs are not set at a sufficient level to cover risk and encourage large-scale private sector investment across all technologies. However, profitable options do exist, such as agricultural waste-to-energy and photovoltaic commercial roof systems. These options are identified as having high development potential in Viet Nam.[89] By showcasing the success of pilots, this will provide GGGI with an ability to strategically influence the enabling environment for the sector.

Geothermal and waste-to-energy are two underexploited sectors with significant potential for Viet Nam. A recent Memorandum of Understanding with Iceland[90] indicates that Viet Nam will look for partnerships on geothermal. This is in line with national goals such as the National Target Program to Respond to Climate Change, which identified geothermal for its clean energy potential.[91] Other studies suggest the same, including the 2014 World Bank Low-Carbon Options Assessment[92] and the 2010 Clean Technology Fund (CTF) Investment Plan for Viet Nam.[93] The CTF study revealed that geothermal potential may be as high as 1.4 GW, compared to wind sector potential of 1.5 GW, while also potentially being more cost effective—provided that the policy and regulatory environment to encourage exploration is improved.[94]

Waste-to-energy and biomass (based on agriculture waste) are the least-cost low-carbon options[95] identified by the World Bank, with greater potential than any other clean technologies.[96] Inputs for biomass and waste-to-energy are widely available throughout the country but have so far been under-utilized.[97] This represents an early area to develop a bankable project, due to: (1) the needs of sugar plantations for energy; (2) a willingness to sell this to the grid; (3) an abundance of waste product to generate electricity; and (4) the benefits to green growth. Further, the GoV has set a target to increase the amount of municipal waste used for energy from the current negligible level to 30% in 2020 and 70% in 2030.[98]

85 World Bank, "Low Carbon Options Assessment," 2014, 10.

86 BNEF, "Climatescope 2015: Vietnam," http://global-climatescope.org/en/country/vietnam/#/details.

87 Ibid., 4.

88 GIZ, "Framework assessment for the promotion of solar energy in Viet Nam," 2015.

89 Ibid.

90 Vietnam News Agency, "Vietnam, Iceland seek more extensive cooperation," November 4, 2015, http://en.vietnamplus.vn/vietnam-iceland-seek-more-extensive-cooperation/84231.vnp.

91 Decision No. 158/2008/QD-TTg on the approval of the National Target Program to Respond to Climate Change, issued by the Prime Minister on February 12, 2008.

92 World Bank, "Low Carbon Options Assessment," 2014, 53.

93 Clean Technology Fun Investment Plan for Viet Nam, 2010, 12.

94 Ibid., 12-13.

95 World Bank, "Low Carbon Options Assessment," 2014, 56.

96 Ibid., 60.

97 Ibid., 39.

98 Decision No. 2068/QD-TTg on the approval of the Development Strategy of Renewable Energy of Vietnam by 2030 with a vision to 2050, issued by the Prime Minister on November 25, 2015.

5.4 Rapid Urbanization Has Had Negative Consequences in Terms of Green Growth

Viet Nam's rural to urban migration continues, along with the transitioning of its economy toward industrial output. Cities are rising around industrial areas as workers relocate for jobs. Most urban growth is in the metropolises of Ha Noi and Ho Chi Minh City, followed by Hai Phong, Da Nang and Can Tho due to attractive employment and income opportunities. As a result, big urban centers receiving large migration inflows are becoming more congested and experiencing serious social and environmental problems.[99]

Viet Nam's cities' boundaries have increased disproportionately with population growth. Over the past decade, 700 km^2 have been converted into urban areas and inhabited by 7.5 million new city residents—that is roughly equivalent to constructing and populating an entire Ho Chi Minh City in just 10 years.[100] Inadequate urban infrastructure combined with a dearth of policy coordination is leading to inefficient urban design.[101]

Viet Nam's urban areas are increasingly significant to economic development and highly vulnerable to climate impacts. Cities are the major driver for GDP growth of the last two decades—Viet Nam's cities account for 70% of GDP, with climate-vulnerable Ho Chi Minh City alone making up 23% of the national GDP.[102] A study on the green economy in Viet Nam by the United Nations Industrial Development Organization (UNIDO) identified urban waste and wastewater infrastructure as particularly in need of support for the treatment and recycling of waste and wastewater.[103]

Viet Nam's cities lack sufficient investment, and will be crucial to demonstrate and deliver green growth. The 2015 CPEIR found that MOC has the lowest climate-relevant spending of the five ministries studied.[104] Given the lack of green infrastructure in Vietnamese cities, and the scale up of large lending programs such as ADB's, there is a significant opportunity for GGGI to deliver a number of bankable projects that will benefit a large percentage of the population and realize green growth.

Urban planning devolvement from the central government down to the provinces has been met with challenges. A lack of capacity and experience below the national level in planning, urban management and financial management, as well as accessing green finance is hampering efforts toward sustainable urban development.[105] Further, sub-national autonomy is not matched with accountability in service delivery in areas such as water and sanitation.[106]

Critical wastewater infrastructure remains in short supply, especially outside of Ha Noi, Ho Chi Minh City and Da Nang where 92% of wastewater treatment plants are located. As of 2015, 30 wastewater treatment plants are under operation treating around 17% of total wastewater produced, and more than 30 plants are under construction or have completed detailed designs. Nearly USD 4 billion dollars has been invested in wastewater management during the past two decades, but there remains a substantial gap especially outside of Ha Noi, Ho Chi Minh City and Da Nang.[107] To meet this infrastructure gap the government has planned substantial investment (see Figure 5). This will in part be funded by ADB through their planned USD 1.6 billion lending program over the next three years.

99 ADB, "Viet Nam: Country Partnership Strategy (2012-2015)," July 2012, http://www.adb.org/documents/viet-nam-country-partnership-strategy-2012-2015.

100 Ibid.

101 Ibid., 15-18.

102 ADB, "Viet Nam Environment and Climate Change Assessment," 2013, 10.

103 United Nations Industrial Development Organization, "Mapping of a Green Economy in Viet Nam," 2015, 21.

104 MPI, "Financing Viet Nam's Response to Climate Change: Smart Investment for a Sustainable Future (CPEIR)," April 2015, 66.

105 Ibid., 17.

106 ADB, "Viet Nam: Country Partnership Strategy (2012-2015)," July 2012, http://www.adb.org/documents/viet-nam-country-partnership-strategy-2012-2015.

107 GIZ, "Wastewater Management Program: National Investment Framework," 2015.

Figure 5. Current and planned wastewater treatment in Viet Nam

Source: GGGI and VNMC Technical Report, "Wastewater Management in the Mekong Delta," 2015, 9

A lack of urban mass transit is costing Viet Nam's economy through congestion and pollution. Ha Noi and Ho Chi Minh City create over 20 million passenger trips a day—90% of which happen via private vehicle.[108] The GoV is building metro systems in both cities, with support from China, Japan and ADB, among others. However, there is a need to ensure that Viet Nam's other emerging cities have the correct green urban planning, in both zoning and transportation, to meet current and future demand, so as to not create drags on economic growth.

108 ADB, "Viet Nam: Country Partnership Strategy (2012-2015)," July 2012, http://www.adb.org/documents/viet-nam-country-partnership-strategy-2012-2015.

6. Strategic Response

During the next five years, GGGI will deliver on its corporate strategy in Viet Nam through working at the national and sub-national levels. GGGI has developed a program that balances requests from the GoV to work at the national level through strategic policy advice, with operating at the provincial level, partnering with cities to develop bankable projects to implement green growth. GGGI has therefore identified three outcomes that will focus on increasing the synergies in its current portfolio around Energy, Water and Green Cities to support achievement of targeted poverty reduction, social inclusion, environmental sustainability and economic growth. The three inter-linked outcomes are as follows:

- Outcome 1 – Green growth objectives are mainstreamed into development planning processes and national financing arrangements.
- Outcome 2 – Green energy uptake is increased through enhanced enabling environments and the development of bankable projects.
- Outcome 3 – Green growth is integrated into Viet Nam's urban development strategies and bankable projects are developed.

GGGI will increase in-house capacity of the country team to deliver added value to Viet Nam through embedded staff and with the support of experts from GGGI's headquarters in Seoul. GGGI will work to build the capacity and institutions of the GoV to enable long lasting and sustainable delivery of green growth. These objectives will support the delivery of the *GGGI Strategic Plan 2015-2020*.

Throughout the delivery of the CPF, GGGI and our partners will follow all Vietnamese regulations on ODA management.

Building on the broader macro level work on water with the VNMC, GGGI has identified a key niche and priority of the government in the development of bankable projects for urban wastewater management. This will therefore be a focus on GGGI's water sector work in Viet Nam for the coming CPF period.

The CPF process in Viet Nam is well timed to align with the forthcoming SEDP 2016-2020, the implementation of Viet Nam's NDC, and the recently-approved SDGs.

GGGI recognizes the cross-sectoral nature of green growth and will work with a wide range of stakeholders to deliver these outcomes. For example, in the urban sector, GGGI will leverage its role as an independent trusted advisor to work with MOC, MOT, MONRE, MPI and provincial governments, as well as development partners, civil society and the private sector.

In the next sub-sections, the strategy and program for each outcome will be detailed, followed by a look at how each outcome aligns with the *GGGI Strategic Plan 2015-2020*, the SDGs and the NDC.

6.1 Outcome 1: Green Growth Objectives are Mainstreamed into Development Planning Processes and National Financing Arrangements

Outcome 1 aims to mainstream green growth into national planning processes of the next phase of the Socio-Economic Development Strategy (2021-2030) and the Socio-Economic Development Plan (2021-2025). It also aims to strengthen Viet Nam's green growth domestic financing arrangements. This outcome is cross-cutting and it addresses many of the SDGs. It will assist Viet Nam to meet an identified roadblock to NDC implementation—access to finance. This outcome will work to tackle critical challenges 1 and 2 identified in section 5:

- Institutional arrangements and planning processes are overlapping, not optimally coordinated or lack sufficient green growth mainstreaming;
- Lack of finance at scale for green growth investments inhibits sustainable development and encourages "brown growth".

Integrate green growth objectives into the SEDS and SEDP to enhance coordination between climate change and green growth strategies, and create one overarching green development objective. The SEDS and SEDP, Viet Nam's long- and medium-term development strategies, will expire in 2020, as will the National Strategy on Sustainable Development. GGGI will work with MPI and MONRE to ensure that the SEDS and SEDP incorporate green growth and climate change objectives. At the same time, GGGI will produce a set of guidelines for developing green sector SEDPs. GGGI will work with both MPI and MONRE to ensure that the VGGS, VGGAP, VSCC and NDC are aligned under one overarching green development objective. This will increase coordination between ministries and provinces, and result in increased implementation of green growth.

Increase public sector green expenditure through the roll out of the Investment Guidelines for Green Growth. GGGI will firstly work with the government to officially launch the Investment Guidelines for Green Growth, and secondly continue to train public sector employees through two additional training courses in 2016 to utilize the guidelines. These training courses will be located in the center and south of the country to enhance that already delivered in the north in 2015. The outcome of the training will be to increase the amount of public sector funding that is allocated to green projects through correct application of the guidelines within sectors.

Strengthen a national financing vehicle to channel and mobilize domestic sources of finance. GGGI will work with MPI to build the capacity of domestic financial institutions to access domestic and international climate finance by:

- Identifying potential domestic financial institutions to access domestic and international climate finance, e.g., the Green Growth Strategy Facility and Viet Nam Environmental Protection Fund;
- Reviewing domestic financial institutions' capacity (legal, financial, managerial, institutional) to receive climate finance (both national and international);
- Identifying mechanisms for attracting international financing (either through direct access or other intermediaries);
- Facilitating access to capital.

Increase access to international sources of finance for green growth. This will include increasing access to the GCF through support to MPI, the national designated authority to the GCF. GGGI could partner with VDB, which oversees a loan portfolio of USD 11.3 billion, half of which is not traditional ODA.[109] Out of a total portfolio of 500 projects, VDB lending includes a green credit line for renewable energy, water supply and energy efficiency projects. These are investment areas dictated by GoV as VDB is a government institution operating on a not-for-profit basis. GGGI will provide portfolio and policy support to increase and improve VDB's on-lending, and ensure the mainstreaming of green growth and climate-friendly investment priorities throughout its operations.

6.2 Outcome 2: Green Energy Uptake is Increased through Enhanced Enabling Environments and the Development of Bankable Projects

Outcome 2 aims to increase the uptake of renewable energy through enhancing the enabling environment and developing bankable projects. This outcome will primarily contribute to achieving SDG1 (No Poverty) and SDG7 (Affordable and Clean Energy), particularly target 7.2 to increase substantially the share of renewable energy in the global energy mix. It will also help Viet Nam to meet its commitment under NDC priority area four (Promote New and Renewable Sources of Energy). This outcome will work to tackle the first three critical challenges identified in section 5:

- Institutional arrangements and planning processes are overlapping, not optimally coordinated or lack sufficient green growth mainstreaming;
- Lack of finance at scale for green growth investments inhibits sustainable development and encourages "brown growth";
- Insufficient enabling environment for the development, implementation and scale up of clean and efficient energy technologies.

109 Meeting with VDB Foreign Capital Department.

Develop the policy and regulatory framework to exploit geothermal and waste-to-energy resources. Through diversifying the mix of energy sources, Viet Nam can secure its energy future and cut back on coal capacity expansion. GGGI will:

- Assess the current policy landscape in Viet Nam in terms of ability to enable geothermal and waste-to-energy power;
- Develop comparative analyses of existing geothermal and waste-to-energy regulatory frameworks from international leaders, such as Iceland for geothermal and Sweden for waste-to-energy, to better understand the necessary improvements to the existing policy in Viet Nam;
- Suggest policy changes to enhance delivery of geothermal power (e.g., feed-in tariff and issuing of licenses), and of waste-to-energy (e.g., policies and actions to reduce costs through improved waste collection for energy recycling).

Develop bankable projects in the green energy sector. To align with GoV requests to demonstrate successful pilots in renewable energy,[110] GGGI will leverage its planning and policy support to identify investments and partner with financial institutions, in particular ADB, to develop projects for implementation. GGGI will:

- Provide technical assistance at the sub-national level to identify appropriate pilots for renewable energy projects;
- Develop a number of bankable projects to access financing to implement green energy. GGGI will work with existing actors in this space to identify suitable bankable projects, for example GIZ, who have highlighted agricultural waste-to-energy and photovoltaic commercial roof systems as having high development potential in Viet Nam;[111]
- Assist sub-national authorities in Viet Nam to attract green energy private sector through risk analysis and mitigation measures to bring down the high cost of capital that is hindering the domestic renewable energy sector.

110 Decision No. 2068/QD-TTg on the approval of the Development Strategy of Renewable Energy of Vietnam by 2030 with a vision to 2050, issued by the Prime Minister on November 25, 2015.

111 GIZ, "Framework assessment for the promotion of solar energy in Viet Nam," 2015.

6.3 Outcome 3: Green Growth is Integrated into Viet Nam's Urban Development Strategies and Bankable Projects are Developed

Outcome 3 aims to mainstream green growth into urban planning and development to ensure delivery and coordination. This outcome also aims to develop bankable projects to increase financing to address critical urban green growth infrastructure gaps such as urban wastewater management. It will include knowledge management and capacity development activities that are focused on the development of practical skills to deliver green growth. This outcome will primarily contribute to achieving SDG11 (Sustainable Cities and Communities), particularly targets 11.3 on sustainable urban planning and 11.6 on reducing the impact of cities through waste management. It will support Viet Nam to uphold its NDC under priority area seven (Waste Management). This outcome will work to tackle critical challenges 1, 2 and 4 identified in section 5:

- Institutional arrangements and planning processes are overlapping, not optimally coordinated or lack sufficient green growth mainstreaming;
- Lack of finance at scale for green growth investments inhibits sustainable development and encourages "brown growth";
- Rapid urbanization has had negative consequences in terms of green growth.

Mainstream green growth into urban planning and development to ensure delivery and coordination. GGGI will work across three areas:

1. The development of a National Urban Green Growth Strategy. This will include:
    - An assessment of current urban green growth activities being undertaken in Viet Nam;
    - Urban green growth indicators for cities, allowing cities to benchmark their progress in implementing

green growth. GGGI will work with MOC to develop a circular to roll out the tracking and implementation of the indicators by cities. This could be incorporated into the urban ranking system—the government hierarchy of cities that determines their level of autonomy, authority and discretionary budget. This would result in Viet Nam's cities having a tangible incentive to implement increasingly ambitious green growth measures;

- Prioritization criteria for green growth projects, which will then be piloted with the cities of Dien Ban, Thai Nguyen and Tra Vinh to identify projects for pre-feasibility studies. This will utilize the Investment Guidelines for Green Growth and the policy note on urban infrastructure investment needs developed with the World Bank;

- An urban green growth roadmap. This will outline the necessary steps to be undertaken to deliver urban green growth in Viet Nam.

2. Mainstreaming green growth into key national documents. This could include:

    - MOC's SEDP;

    - Masterplan development guidance for cities;

    - National Program on Urban Development 2014–2019. For example, in northern Viet Nam, GGGI could work to add green growth objectives to the urban development process in these secondary cities, ensuring green growth benefits are received by some of the poorest in Viet Nam;

    - The design of a National Program on Green Urban Development, due to be launched in 2020. This would be delivered in partnership with ADB.

3. Knowledge management and capacity development, for example through the Viet Nam Urban Forum, the Urban Green Growth Week, and the continuation of the training delivered in 2015. Capacity development activities will be focused on the development of practical skills to deliver green growth—for example, on the preparation of bankable projects.

Develop bankable projects to increase financing to address critical urban green growth infrastructure gaps such as urban wastewater management. With Viet Nam's urban infrastructure inefficient, inadequate and unsustainable, GGGI will work with financing institutions, such as ADB, to deliver a number of bankable projects to leverage finance to implement green growth in the urban sector. This will be delivered in two phases:

1. Phase one will be delivered in 2016, through GGGI's partnership with Ben Tre City and ADB to develop a bankable project to access an ADB loan of up to USD 25 million for urban wastewater management. On completion of the work, and approval from the Gov, the proposal will be submitted to ADB board for funding. ADB technical experts will work side-by-side with GGGI experts as part of the Inclusive Green Growth Partnership. Specifically, GGGI will provide technical expertise to:

    - Conduct a diagnostic review and assessment of: (1) existing policy, legal and institutional frameworks; (2) existing plans and relevant documents; and (3) socio-economic dimensions of drainage/wastewater management in Ben Tre City;

    - drainage/wastewater management in Ben Tre City;

    - Prepare recommendations for wastewater treatment and sanitation improvement;

    - Review climate change adaptation and mitigation needs, low-carbon and low-energy/water use solutions;

    - Conduct an Initial Environmental Examination meeting ADB and GoV standards for the selected option.

2. Post-2016, GGGI will build on the work with Ben Tre and other cities to develop credible, scaled-up and attractive investment projects to address the needs in the wastewater, transport and buildings sectors. Through partnerships with ADB and other development agencies, GGGI will provide technical assistance and project development advice to Viet Nam's cities and provinces in order to access loans for necessary green infrastructure improvements.

    GGGI expertise in urban infrastructure will assist national and sub-national stakeholders to conduct feasibility studies, evaluate business models and prepare projects for implementation.

Through the Inclusive Green Growth Partnership, GGGI will link the work under this outcome with the United Nations Economic and Social Commission for Asia and the Pacific and the ASEAN regional policy dialogues on green growth and sustainable cities development.

6.4 Alignment with the GGGI Strategic Plan, SDGs and NDC

The CPF outcomes will contribute to GGGI's corporate goal in "strengthening of national, sub-national, local green growth planning, financing and institutional frameworks" and "increased green investment flows". The program also directly contributes to the SDGs and Viet Nam's NDC.

6.4.1 Alignment with the GGGI Strategic Plan

Table 5 reflects how the GGGI Viet Nam CPF will align in-country support to the *GGGI Strategic Plan 2015-2020* and national green growth priorities.

Table 5. Alignment with GGGI strategic areas and VGGAP

Strategic Outcomes	Viet Nam Green Growth Action Plan Activity	GGGI Thematic Priority	GGGI Value Chain
Outcome 1: Green growth objectives are mainstreamed into development planning processes and national financing arrangements	• Activity 2 (Institutional framework) • Activity 3 (Green growth financial policy framework) • Activity 6 (Sub-national GGAP)	• Cross cutting	• Green Impact Assessment • Sector/Sub-sector strategy and planning • Design, financing and implementation
Outcome 2: Green energy uptake is increased through enhanced enabling environments and the development of bankable projects	• Activity 9 (National energy strategy) • Activity 26 (Policies to develop clean energy sources) • Activity 27 (R&D of geothermal and biomass sources) • Activity 49 (Energy infrastructure sustainability)	• Energy	• Sector/Sub-sector strategy and planning (Energy) • Design, financing and implementation
Outcome 3: Green growth is integrated into Viet Nam's urban development strategies and bankable projects are developed	• Activity 28 (Clean air) • Activity 54 (Green urban master plans) • Activity 55 (Sustainable urban infrastructure) • Activity 60 (Green urban landscape)	• Green Cities • Water	• Sector/Sub-sector strategy and planning (Green Cities and Water) • Design, financing and implementation

6.4.2 Alignment with the SDGs

GGGI will leverage resources under the CPF to help orient green growth toward progress in attaining the SDGs.

Outcome 1: Green growth objectives are mainstreamed into development planning processes and national financing arrangements is cross-cutting and it addresses many of the SDGs. Of high relevance though are: SDG1 (No Poverty), SDG7 (Affordable and Clean Energy), SDG8 (Decent Work and Economic Growth), SDG5 (Gender Equality), SDG11 (Sustainable Cities and Communities), SDG12 (Responsible Consumption and Production), SDG13 (Climate Action), SDG14 (Life Below Water), SDG15 (Life On Land) and SDG17 (Partnerships for the Goals). In particular, this outcome will address the following targets:

- Goal 17 (Partnerships for the Goals), Target 17.3 – Mobilize additional financial resources for developing countries from multiple sources;
- Goal 17 (Partnerships for the Goals), Target 17.9 – Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation;
- Goal 17 (Partnerships for the Goals), Target 17.14 – Enhance policy coherence for sustainable development.

Outcome 2: Green energy uptake is increased through enhanced enabling environments and the development of bankable projects is linked to SDG7 (Affordable and Clean Energy), and indirectly addresses SDG1 (No Poverty), SDG9 (Industry, Innovation and Infrastructure), SDG12 (Responsible Consumption and Production) and SDG13 (Climate Action). In particular, this outcome will address the following targets:

- Goal 7 (Affordable and Clean Energy), Target 7.1 – Ensure universal access to affordable, reliable and modern energy services;
- Goal 7 (Affordable and Clean Energy), Target 7.2 – Increase substantially the share of renewable energy in the global energy mix .

Outcome 3: Green growth is integrated into Viet Nam's urban development strategies and bankable projects are developed will address the following SDG targets:

- Goal 1 (No Poverty), Target 1.5 – Build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters;
- Goal 11 (Sustainable Cities and Communities), Target 11.3 – Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries;
- Goal 11 (Sustainable Cities and Communities), Target 11.5 – Significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations;
- Goal 11 (Sustainable Cities and Communities) Target 11.6 – Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management;
- Goal 13 (Climate Action), Target 13.1 – Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

It is also likely to contribute to the following SDGs through the development of bankable projects:

- Goal 6 (Clean Water and Sanitation), Target 6.3 – Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally;
- Goal 7 (Affordable and Clean Energy), Target 7.2 – Increase substantially the share of renewable energy in the global energy mix;
- Goal 8 (Decent Work and Economic Growth), Target 8.1 – Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7% gross domestic product growth per annum in the least developed countries;
- Goal 9 (Industry, Innovation and Infrastructure), Target 9.1 – Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all;
- Goal 9 (Industry, Innovation and Infrastructure) Target 9.4 – Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater implementation of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities;
- Goal 11 (Sustainable Cities and Communities), Target 11.1 – Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums;
- Goal 11 (Sustainable Cities and Communities), Target 11.2 – Provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons;
- Goal 12 (Responsible Consumption and Production), Target 12.5 – Substantially reduce waste generation through prevention, reduction, recycling and reuse.

6.4.3 Alignment with Viet Nam's NDC

For mitigation, the NDC identifies seven priority areas. Table 6 links these to the outcomes in this CPF.

Table 6. CPF outcome alignment with relevant NDC mitigation priority areas

NDC Mitigation Priority Areas	Relevant CPF Outcomes
Strengthen the role of the State in responding to climate change	Outcomes 1, 2 and 3 (cross-cutting)
Improve effectiveness and efficiency of energy use, and reduce energy consumption	Outcome 3
Change the fuel structure in industry and transport	Outcomes 1 and 2
Promote effective exploitation and increase the proportion of new and renewable energy sources in production and development	Outcome 2
Waste management	Outcome 2
Communication and awareness raising	Outcomes 1, 2 and 3 (cross-cutting)
Enhance international cooperation	Outcomes 1, 2 and 3 (cross-cutting)

The adaptation component of Viet Nam's NDC is critical given how vulnerable the country is to the adverse impacts of climate change. Table 7 highlights where the NDC adaptation component overlaps with the three outcomes.

Table 7. CPF outcome alignment with the NDC adaptation priority areas

NDC Adaptation Priority Areas	Relevant CPF Outcomes
Respond proactively to disaster and improve climate monitoring: • Mainstream resilience and climate change scenarios into SEDPs; • Use community-based adaptation in local areas including cities.	Outcomes 1 and 3
Ensure social security: • Develop resilient livelihoods and production processes linked to poverty reduction and social inclusion; • Improve regulations and standards for infrastructure, including transport and construction; • Implement integrated water resources management.	Outcomes 1 and 3
Respond to sea level rise and urban inundation: • Mainstream sea level rise scenarios in urban planning for infrastructure and industry; • Implement anti-inundation measures for coastal cities; • Construct climate resilient urban infrastructure.	Outcome 3

Annex A: References for Table 1. Viet Nam at a Glance

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Annex B: Consultation Summary

B.1 Stakeholder Consultation Process and Feedback

The consultation process for the Viet Nam CPF included the following steps:

1. Bilateral technical consultations with ministries relevant to green growth throughout the second half of 2015 to receive their input on strategic direction and potential areas of support;

2. A roundtable discussion and bilateral meetings on potential priorities with key development partners, including the multilateral institutions, bilateral agencies and donors;

3. In-depth bilateral meetings with key development partners on specific areas of cooperation—including with ADB, Belgian Technical Cooperation, UNDP and World Bank;

4. Continuous discussions with in-country counterpart—MPI—on strategic priorities and potential projects for consideration;

5. A national consultation workshop hosted by MPI and GGGI to receive feedback on GGGI's proposed CPF priorities, which included approximately 50 participants from government, civil society (for example the Asia Foundation), development partners and academia;

6. Two rounds of internal consultations with GGGI's Technical Working Group;

7. Peer review by GGGI Country Representatives in Colombia, Ethiopia and Mongolia;

8. Two rounds of consultations with GGGI's Management Team;

9. Final review and written comments by ministries;

10. Final sign off by MPI and GGGI.

B.2 Workshop Summary Report

Workshop on Developing a Country Planning Framework for GGGI Viet Nam 2016-2020 in Ha Noi, Viet Nam on November 27, 2015

This workshop was organized by GGGI and MPI, chaired by Dr. Pham Hoang Mai, Director General of the Department for Science, Education, Natural Resources and Environment, MPI and Mr. Adam Ward, Country Representative for GGGI in Viet Nam.

Approximately 50 participants from different organizations attended the workshop, including senior staff members of MPI, VCCI, Ministry of Construction, Ministry of Transportation, Ministry of Industry and Trade, VDB, World Bank, GIZ, Asia Foundation, Agence Française de Développement, NGOs, Embassies (Norway, Peru, etc.) and independent experts.

The workshop started with a welcome address by Dr. Pham Hoang Mai, MPI. He emphasized the importance of green growth in Viet Nam and the role of government counterparts, relevant NGOs and development partners in green growth. Mr. Adam Ward introduced GGGI's activities to date, and a draft CPF with the objective of identifying priority areas for support and formulating its strategic implementation plan for the period 2016-2020 in Viet Nam.

Participants provided comments both orally during the workshop and in writing ahead of the workshop. These are summarized below in section B.3.

In the concluding remarks by Dr. Pham Hoang Mai, and Mr. Adam Ward, they thanked all the participants for their valuable contributions to the CPF during the workshop. The team will continue to revise and complete the CPF based on the comments and feedback from the participants.

B.3 Summary of Recommendations Provided by GoV Ministries Before, During and After the CPF Workshop

Ministry of Planning and Investment (GGGI counterpart)

- Work on mainstreaming green growth into key national planning documents, such as SEDP;
- Work to support scale up of financing requirements, for example through the Green Growth Strategy Facility;
- In the area of renewable energy, focus must be on a niche area for GGGI and show coordination with other development partners;
- Continue successful partnership with MOC and focus on implementation of green growth in Viet Nam's cities;
- Add comparative advantage of GGGI.

Ministry of Natural Resources and Environment

- Ensure correct and up-to-date figures are used for emissions and reductions;
- Request GGGI to work on geothermal, in particular the regulatory environment for implementing pilot projects;
- Support idea for GGGI to work on waste-to-energy, MONRE has key role to play;
- Highlight MONRE's involvement in green cities development and the need to work with GGGI.

Ministry of Industry and Trade

- MOIT-IE needs pilot implementation of each renewable energy technology. Right now there is a scattershot approach to new technology, not strategic. Currently, standard "best practice" is increase in efficiency by 50%;
- Bidding process to reach emissions reduction targets for each sector;
- Infrastructure to support biomass – rice waste collection;
- Waste-to-energy projects;
- Small-scale efficient cook stoves.

Ministry of Transport

- **Urban transport infrastructure**
  - Urban development toward public transport location (TOD - Transit Oriented Development). This is the tendency to create community and commercial district surrounding the urban railway station so that people can walk and not depend on personal vehicles to travel or live;
  - Develop ring road networks, flyovers at junctions and pedestrian overpass;
  - Establish a network connection between urban railway and buses, and develop forms of non-motorized transport and smart transportation;
  - Develop system of public passenger transport (urban rail and bus rapid transit), reducing the use of private vehicles.
- **Change of fuel-use structure, technology innovation of vehicles**
  - Innovations that use cleaner fuels, save energy, are more efficient and limit the use of fossil fuels;
  - Apply a higher emission standard;
  - Develop and apply regulations on fuel consumption and energy labeling for vehicles;
  - Emission control on cars, motorcycles and mopeds in traffic;
  - Promote network of vehicles inspection and maintenance.
- **Inventory and evaluation of emissions reduction in transportation**
  - Strengthen capacity to implement inventory and assess the GHG emissions in transport activities.

Ministry of Agriculture and Rural Development

- **Little support but a lot of responsibilities.**
- **Need assistance from GGGI on the following:**
  - How to coordinate disparate projects across sectors and other stakeholders;
  - How to link pilot-scale projects with policy frameworks and scale up;
  - Local-level knowledge of what green growth actually is, and how to prioritize projects for green growth;
  - Develop indicators for green growth in three sectors;
  - The ministry's monitoring and evaluation system has 100 indicators—which ones are related to green growth?;
  - Lack of dedicated staff on green growth, and no knowledge management system to group all green growth-related projects in one database;
  - Support to apply MPI's Investment Guidelines for Green Growth in any of the agriculture sectors;
  - Lack of coordination and institutional framework to mainstream green growth and implement projects;
  - Need an efficient mechanism to scale up and disseminate best practices.

Ministry of Construction

- **Develop strategy and roadmap for urban green growth development in Viet Nam**
  - Period: 2016;
  - Objectives: To develop a strategic roadmap and action plan for urban green growth development, consistent with the actual conditions of Viet Nam; and guidelines for cities to develop investment plan for urban green growth.
- **Conduct pilot investment projects for urban green growth development in two or three cities**
  - Period: 2017-2018;
  - Objectives: To implement the pilot based on the specific conditions of the municipality, in order to supplement and improve the related policies necessary for urban green growth development.
- **Support institutional strengthening and promulgate legal documents guiding the implementation of urban green growth development**
  - Duration: 2016–2017;
  - Objectives: Provide support to institutionalize the cooperation outcomes reached in 2015 and 2016 on the urban green growth indicators (2015) and the ongoing strategic framework and roadmap for urban green growth in Viet Nam (2016). In the meantime, provide support to mainstream requirements for urban green growth in relevant laws, decrees and circulars.
- **Study and issue regulations on master planning of urban green growth**
  - Duration: 2016–2017;
  - Objectives: Provide support to review and supplement existing standards, or enact new regulations/standards on master planning for urban green growth.
- **Plan for National Programs on Development of Urban Green Growth**
  - Period: 2018–2019;
  - Objectives: The National Program on Urban Development for the period 2012-2020 was approved and will end in 2020 (Decision 1659/QD-TTg dated November 7, 2012). This task is to integrate the requirements of urban green growth in the next Program—the National Program on Urban Green Growth Development.
- **Other activities for the period 2016-2020**
  - Enhance capacity on urban green growth for urban authorities at all levels;
  - Support the building of basic databases on urban green growth;
  - Expand the networking of urban green growth;
  - Support the Viet Nam Urban Forum and develop thematic groups on urban green growth.

Annex C: Indicators for Green Growth Diagnostic

Theme	Sub-theme	Indicator	Unit	Definition	Source
Resource Efficient Growth	Energy Efficiency	Energy intensity	MJ/USD	Ratio between energy supply and GDP measured at purchasing power parity http://data.worldbank.org/indicator/EG.EGY.PRIM.PP.KD	**WB**
		Distribution losses of electricity	% of total	Ratio of total electricity generation and losses in transmission between sources of supply and points of distribution and in the distribution to consumers, including pilferage http://data.worldbank.org/indicator/EG.ELC.LOSS.ZS	
	Resource Productivity	Material intensity	Kg of domestic consumption per unit GDP (USD)	Ratio between GDP and the total amount of domestic materials (construction/industrial minerals, metal, ores, fossil fuels and biomass) extracted http://www.materialflows.net/data/datadownload (flow type "Extraction" flow sub-type "Used" reference parameter "Per GDP"	**SERI**
		Fresh water productivity	Unit GDP (USD) per m^3 of freshwater withdrawal	GDP in constant prices divided by the annual freshwater withdrawal http://data.worldbank.org/indicator/ER.GDP.FWTL.M3.KD	**WB**
		Municipal solid waste generation intensity	Kg of waste per unit GDP (USD)	Ratio between GDP and municipal solid waste generated http://www.atlas.d-waste.com/ http://data.worldbank.org/indicator/NY.GDP.MKTP.CD	**Dwaste, WB**
		Recycling rate of solid waste	% of total waste generated	Recycling rate of municipal solid waste generated http://www.atlas.d-waste.com/	**Dwaste**
		Agricultural (land) productivity	USD per hectare of arable land	Ratio between agricultural production and total area of arable land under permanent crops, and under permanent pastures http://faostat3.fao.org/download/Q/QV/E (Gross Production Value constant 2004-2006) http://data.worldbank.org/indicator/AG.LND.AGRI.K2	**FAO** **WB**
	Other Productivity Factors	Labor productivity	GDP (1,000 USD) per worker	GDP per worker of labor force http://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm Indicator: Output per worker (GDP constant 2005 USD)	**ILO**
		Logistics performance index	1 – 5 (higher the better)	Performance of countries in six areas that capture the most important aspects of the current logistics environment http://data.worldbank.org/indicator/LP.LPI.OVRL.XQ http://siteresources.worldbank.org/INTLAC/Resources/ConnectingtoCompete.pdf	**WB**
		Technological readiness	1 – 7 (higher the better)	The Technological Readiness Index aims to measure the agility with which an economy adopts existing technologies to enhance the productivity of its industries. The index covers the areas of: (1) technological implementation (availability of latest technologies, firm-level technology absorption, FDI and technology transfer); and (2) use of information and communication technologies (Internet users, broadband Internet subscriptions, Internet bandwidth, mobile broadband subscriptions, mobile telephone subscriptions, fixed telephone lines) http://www3.weforum.org/docs/WEF_GlobalCompetitivenessReport_2014-15.pdf	**WEF**

Eco-Efficient Growth	**Quantity of Natural Assets**	Coastal shelf fishing pressure	ton/km2	Intensity of fish catch using gears such as trawlers that operate on the shelf http://www.epi.yale.edu/files/fisheries_0.xls	**EPI**
		Changes in forest cover	% change during 2000-2012	% change in forest cover between 2000 and 2012 (Definition of forest: Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10%, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use) http://faostat3.fao.org/download/R/RL/E	**FAO**
		Water stress index	0 – 5 (higher the greater competition among users)	Total annual water withdrawals (municipal, industrial and agricultural) to total renewable supply http://www.wri.org/sites/default/files/aqueduct_coutnry_rankings_010914.pdf	**WRI**
		Natural resources depletion	% of GNI	The sum of net forest depletion, energy depletion and mineral depletion, as a percentage of GNI. Net forest depletion is unit resource rents times the excess of round wood harvest over natural growth. Energy depletion is the ratio of the value of the stock of energy resources to the remaining reserve lifetime (capped at 25 years). It covers coal, crude oil and natural gas. Mineral depletion is the ratio of the value of the stock of mineral resources to the remaining reserve lifetime (capped at 25 years). It covers tin, gold, lead, zinc, iron, copper, nickel, silver, bauxite and phosphate http://data.worldbank.org/indicator/NY.ADJ.DRES.GN.ZS	**WB**
	Quality of Natural Assets	Changes in the number of engendered species	% change during 2013-2015	Changes in number of endangered species in a country, based on the "IUCN Red List of Threatened Species" http://cmsdocs.s3.amazonaws.com/summarystats/2015-4_Summary_Stats_Page_Documents/2015_4_RL_Stats_Table_5.pdf	**IUCN**
		Water quality index	0 – 100 (higher the better)	The Water Quality Index uses three parameters measuring nutrient levels (Dissolved Oxygen, Total Nitrogen and Total Phosphorus), and two parameters measuring water chemistry (pH and Conductivity) to understand levels of water quality http://www.epi.yale.edu/files/2010epi_data.xls	**EPI**
		Trends in soil health	0 – 50 (higher the better)	Trends in Soil Health Index measures: (1) The physical part related to loss of soil mass and structure; and (2) the long term chemical well-being of the soil in terms of nutrients and absence of toxicities built up http://www.fao.org/nr/lada/index.php?option=com_docman&task=doc_download&gid=773&lang=en	**FAO**
		Average exposure to $PM_{2.5}$ events	micrograms per m^3 (average during 2003-2010)	Average exposure to $PM_{2.5}$, or particles smaller than 2.5 micrometers http://www.epi.yale.edu/files/air_quality_0.xls (Sheet name: PM2.5 Exceedence_Avg)	**EPI**
Climate Resilient Growth	**Climate Change Mitigation**	CO_2 emission trends	% change in total emission during the last 5 years	% change in national emissions of greenhouse gases including CO_2, CH_4, N_2O, PFC, HFC and SF_6 over the latest five years available http://data.worldbank.org/indicator/EN.ATM.CO2E.KT	**WB**
		Carbon intensity	tons of CO_2 per unit GDP (USD)	Amount of carbon dioxide emissions (those stemming from the burning of fossil fuels and the manufacture of cement) per unit of gross domestic production http://data.worldbank.org/indicator/NY.GDP.MKTP.CD http://data.worldbank.org/indicator/EN.ATM.CO2E.KT	
		Renewable energy production	% of total electricity production (excludes hydro)	Share of renewable energy in total production (renewable energy follows the definition by the International Energy Agency) http://data.worldbank.org/indicator/EG.ELC.RNWX.ZS	
		Carbon stock in living forest biomass	% change in biomass during 2000-2010	% change in carbon stock, which is a quantity of carbon contained in a reservoir or system of living forest biomass that has the capacity to accumulate or release carbon http://www.fao.org/docrep/013/i1757e/i1757e14.pdf	**FAO**
	Climate Change Adaptation	Climate change exposure	0 – 1 (lower the less exposed)	The degree to which a system is exposed to significant climate change from a biophysical perspective. It is a component of vulnerability independent of socio economic context. Exposure indicators are projected impacts for the coming decades and are therefore invariant overtime http://index.gain.org/ranking/vulnerability/exposure	**NDGAIN**
		Climate change sensitivity	0 – 1 (lower the less sensitive)	The extent to which a country is dependent upon a sector negatively affected by climate hazard, or the proportion of the population particularly susceptible to a climate change hazard. A country's sensitivity can vary over time http://index.gain.org/ranking/vulnerability/sensitivity	
		Adaptive capacity to climate change	0 – 1 (lower the higher adaptive capacity)	The availability of social resources for sector-specific adaptation. In some cases, these capacities reflect sustainable adaptation solutions. In other cases, they reflect capacities to put newer, more sustainable adaptations into place. Adaptive capacity also varies over time http://index.gain.org/ranking/vulnerability/capacity	

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