



Global  
Green Growth  
Institute

# Impact Pathway Review: Viet Nam Program

**KEY FINDINGS  
& RECOMMENDATIONS**

**Impact & Evaluation Unit, 2020**



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## Abbreviations

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CEIA	Clean Energy Investment Accelerator
CPEIR	Climate Public Expenditure and Investment Review
CPF	Country Planning Framework
ESCO	Energy Service Companies
FIT	Feed-in tariff
HCA	Host Country Agreement
IDIA	International Development Innovation Alliance
IEU	Impact & Evaluation Unit
IGGG	Investment Guidelines on Green Growth
IPR	Impact Pathway Review
MOIT	Ministry of Industry and Trade
MPI	Ministry of Planning and Investment
NDC	Nationally Determined Contributions
ODA	Official development assistance
SDG	Sustainable Development Goals
SME	Small and medium enterprises
SMEDF	SME Development Fund
SO	Strategic Outcomes
VGGS	Viet Nam Green Growth Strategy
WPB	Work Program and Budgets

## 1. Introduction

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This Impact Pathway Review of GGGI's Viet Nam Program was undertaken by the Impact and Evaluation Unit (IEU) as part of its' [2020 workplan](#).

The review took place between October 2019 and May 2020 and covered all completed and ongoing activities relevant to the [Viet Nam Country Planning Framework \(CPF\) 2016-2020](#). Activities excluded from the IPR include:

- legacy activities related to water, which started before 2015 and were later phased out.
- future activities planned in proposals.

The IPR process typically involves the following steps:

- a review of key program documents
- interviews with GGGI staff
- in-country mission to interview key stakeholders in Viet Nam

Due to Covid-19, the in-country mission was not conducted. The evidence base to inform this report was thus limited to program documents and discussions with GGGI staff. Due to other priorities, Government counterparts were not available for online interviews, but with support from GGGI Viet Nam, there were brief exchanges by email with selected counterparts to validate or collect updated information regarding some outcomes.

## 2. Country program overview

Some general information about GGGI's Viet Nam Program is presented here as context for later sections.

Program age	GGGI commenced work in Viet Nam in 2011, but for this review, IEU treats 2015 as the effective start date. This was when a permanent in-country team and a full country program began to be established.																																			
Membership	Viet Nam joined GGGI as a founding member in 2012 and membership was ratified in the same year.																																			
Host Country Agreement	No Host Country Agreement (HCA) had been signed at the time of the review. The basis for GGGI's operations in Viet Nam is an MOU with the Ministry of Planning and Investment (MPI). MPI is GGGI's host ministry in Viet Nam and GGGI staff are embedded within one of MPI's offices.																																			
Country Strategy	<p>The first CPF was released in 2016 and covers the period 2016-2020. It identified 3 priority areas for GGGI's country program:</p> <ul style="list-style-type: none"><li>• Green growth mainstreamed into national development planning and financing</li><li>• Renewable energy promoted through enabling policies and investment projects</li><li>• Green growth mainstreamed into urban development planning and projects</li></ul> <p>A new CPF is expected to be developed in 2021.</p>																																			
Budget	<p>The table below shows budget allocations to Viet Nam under GGGI Work Program &amp; Budgets (WPB) approved by Council.</p> <table border="1"><thead><tr><th rowspan="2">Year</th><th colspan="3">WPB budget allocations (USD,000)</th></tr><tr><th>Core</th><th>Earmarked</th><th>Total</th></tr></thead><tbody><tr><td>2015</td><td>808</td><td>101</td><td>909</td></tr><tr><td>2016</td><td>781</td><td>51</td><td>832</td></tr><tr><td>2017</td><td>1,199</td><td></td><td>1,199</td></tr><tr><td>2018</td><td>1,299</td><td></td><td>1,299</td></tr><tr><td>2019</td><td>750</td><td></td><td>750</td></tr><tr><td>2020</td><td>750</td><td>867<sup>1</sup></td><td>1,617</td></tr><tr><td><b>Total</b></td><td><b>5,587</b></td><td><b>1,019</b></td><td><b>6,606</b></td></tr></tbody></table>	Year	WPB budget allocations (USD,000)			Core	Earmarked	Total	2015	808	101	909	2016	781	51	832	2017	1,199		1,199	2018	1,299		1,299	2019	750		750	2020	750	867 <sup>1</sup>	1,617	<b>Total</b>	<b>5,587</b>	<b>1,019</b>	<b>6,606</b>
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<b>Total</b>	<b>5,587</b>	<b>1,019</b>	<b>6,606</b>																																	
Team size	5 full-time staff, based in Hanoi																																			
Projects	In total, 9 projects (core and earmarked funded) were included within the scope of this review, representing almost all projects undertaken between 2015 and 2020. For the full list, see <b>Annex 1</b> .																																			

<sup>1</sup> Earmarked budget for 2020 was drawn from *GGGI Online* and reflects funding from Luxembourg for a green bonds project.

<b>Key GoV partnerships</b>	Ministry of Planning and Investment Ministry of Construction Ministry of Industry and Trade Ministry of Finance SME Development Fund																									
<b>Growth stage</b>	<p>Under <a href="#">Strategy 2030</a>, GGGI introduced a new framework of classifying country programs, based on 3 stages of growth. This classification was introduced to provide clearer expectations on how country programs are expected to evolve over time, while also ensuring that resources are not being spread too thinly for the given stage that country programs are at.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #00AEEF; color: white;"> <th style="text-align: center; padding: 5px;">Stage</th> <th style="text-align: center; padding: 5px;">Years of operation</th> <th style="text-align: center; padding: 5px;">Indicative annual budget</th> <th style="text-align: center; padding: 5px;">Team size</th> <th style="text-align: center; padding: 5px;">Programmatic solutions</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 5px;">Phase In</td><td style="text-align: center; padding: 5px;">0-2</td><td style="text-align: center; padding: 5px;">\$0.4m</td><td style="text-align: center; padding: 5px;">2</td><td style="text-align: center; padding: 5px;">2-3</td></tr> <tr> <td style="text-align: center; padding: 5px;">Mature</td><td style="text-align: center; padding: 5px;">3-5</td><td style="text-align: center; padding: 5px;">\$1-2m</td><td style="text-align: center; padding: 5px;">5</td><td style="text-align: center; padding: 5px;">4-5</td></tr> <tr> <td style="text-align: center; padding: 5px;">Expansion (optional)</td><td style="text-align: center; padding: 5px;">6-10</td><td style="text-align: center; padding: 5px;">\$3-6m</td><td style="text-align: center; padding: 5px;">10</td><td style="text-align: center; padding: 5px;">4-5 or more</td></tr> <tr> <td style="text-align: center; padding: 5px;"><b>Viet Nam Program (2020)</b></td><td style="text-align: center; padding: 5px;">5</td><td style="text-align: center; padding: 5px;">\$1.6m</td><td style="text-align: center; padding: 5px;">5</td><td style="text-align: center; padding: 5px;">5</td></tr> </tbody> </table> <p>At present, the Viet Nam Program can currently be considered a 'mature' stage program. In the next CPF, one of the decisions for GGGI is whether to maintain the program in 'mature' stage or seek to move to 'expansion' stage.</p>	Stage	Years of operation	Indicative annual budget	Team size	Programmatic solutions	Phase In	0-2	\$0.4m	2	2-3	Mature	3-5	\$1-2m	5	4-5	Expansion (optional)	6-10	\$3-6m	10	4-5 or more	<b>Viet Nam Program (2020)</b>	5	\$1.6m	5	5
Stage	Years of operation	Indicative annual budget	Team size	Programmatic solutions																						
Phase In	0-2	\$0.4m	2	2-3																						
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<b>Viet Nam Program (2020)</b>	5	\$1.6m	5	5																						

### 3. Impact pathway for the Viet Nam Program

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#### Introduction to impact pathways

To effectively review a country program, it is necessary to first know the intended results of the program and how they are to be achieved – ie: the pathways to impact. This information is normally captured in theories of change or results frameworks. GGGI policies require results frameworks at project level (logframes) but not at country program level.<sup>2</sup>

To fill this gap, IEU developed the **impact pathway approach**. This approach enables a theory of change and/or results framework for the country programs to be retrospectively reconstructed using information from project level. The resulting impact pathway for the Viet Nam Program is presented in **Figure 1** below.

#### Guidance on reading the impact pathway diagram

A brief explanation of the impact pathway's key features is provided here to help readers understand and interpret the diagram.

- **Programmatic solutions:** All parts of the Viet Nam Program can be grouped into 5 programmatic solutions<sup>3</sup>, as shown by the colored boxes. For this report, they have been relabeled to improve readability.

**Note:** The Viet Nam Program also includes work belonging to the 'Green Investment' programmatic solution. In this IPR, 'Green Investment' is treated as cross-cutting and shown as outcomes within other programmatic solutions.

CPF priority	Programmatic Solution	Label used in this report	Color
Green growth mainstreamed into national development planning and financing	Climate Action	Viet Nam Green Growth Strategy (VGGS) Implementation & Financing	Green
Green growth mainstreamed into urban development planning and projects	Climate Action	Green Urban Development	Blue
	Waste management	Waste Management	Orange
Renewable energy promoted through enabling policies and investment projects	Solar PV	Solar energy	Yellow
	Waste management	Biomass energy	Red

- **Intermediate outcomes:** In each of these areas, GGGI delivers outputs to achieve key intermediate outcomes along different stages of GGGI's value chain: (i) policy (ii) financing instruments<sup>4</sup> (iii) investment projects. Planned outcomes are described in the white boxes. The actual status of outcomes is summarized with various icons. The status was determined based on document reviews and interviews carried out by IEU.

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<sup>2</sup> However, GGGI's systems are in the process of being changed to address this.

<sup>3</sup> GGGI has recently adopted a menu of 10 programmatic solutions, aligned to *Strategy 2030*. These are a set of defined thematic interventions that GGGI wishes to focus on and replicate or scale up if successful.

<sup>4</sup> Financing covers instruments and mechanisms designed to mobilize green finance, without any specific projects attached. Examples include national financing vehicles, loan programs, bonds or domestic budget allocations.

Icon	Status of actual outcome
✓	Outcome achieved
⌚	Outcome in progress
✗	Outcome not achieved

- **Estimated strategic outcomes (Impacts)**: Intermediate outcomes are expected to lead to impacts. Impacts often take the form of GGGI's 6 strategic outcomes (SO) but may sometimes also take other forms.

- SO1 – GHG emissions reduced
- SO2 – Green jobs created
- SO3 – Increased access to sustainable services (clean energy, waste management, sustainable transport, sanitation)
- SO4 – Improved air quality
- SO5 – Adequate maintenance of natural capital
- SO6 – Enhanced adaptation to climate change

Consistent with GGGI's [Strategic Outcomes Guidelines](#), impacts are divided into attributed impacts and contributed impacts. All impacts are estimates of what will occur in the future assuming policy, financing and investment outcomes proceed as planned. Where GGGI has successfully completed outcomes that lead to impacts, these are indicated in **green text** and may be counted towards the GGGI-wide targets in *Strategy 2030*. For outcomes that are still in progress, the estimated impacts are indicated in **grey text**.

- **Country goals**: The right side of the diagram summarizes official development goals/targets of the Viet Nam Government that GGGI is helping to achieve through its' program.
- **Causal pathways**: The arrows in the diagram indicate the presence of a causal relationship, where one result causes (or contributes to the causation of) another result. The existence of these causal pathways has been determined through document reviews and interviews carried out by IEU. Causal pathways that have been confirmed are shown with **solid red arrows**. Causal pathways that are possible but not yet confirmed are shown in **dotted red arrows**.

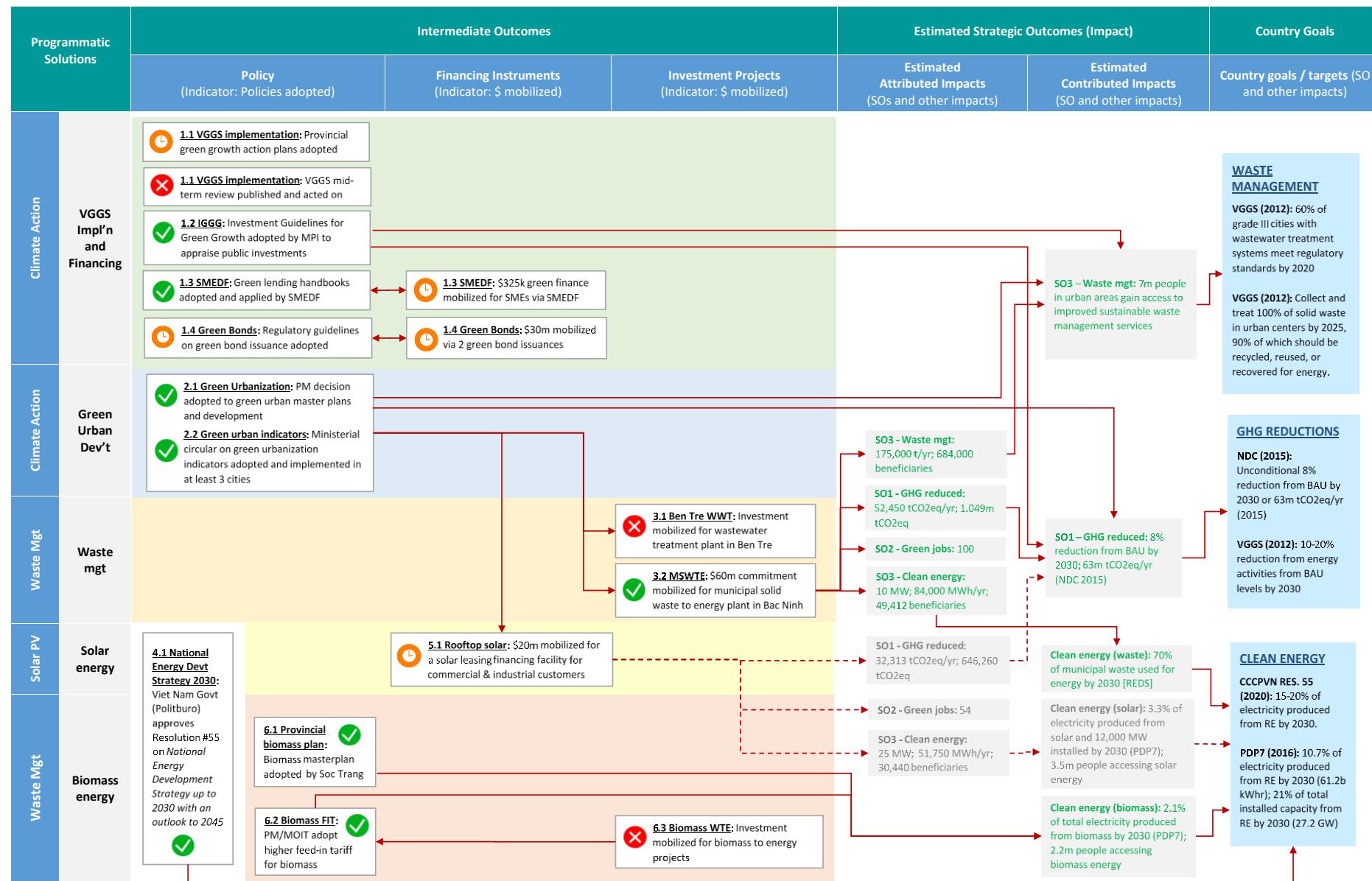
### Supporting information and evidence underpinning the impact pathway diagram

Full descriptions of all outputs<sup>5</sup>, outcomes and impacts along the impact pathway are provided in a separate companion report: ***Viet Nam Program IPR – Detailed Results Report***. For ease of cross-referencing, the numbering of intermediate outcomes in the impact pathway corresponds with relevant sections in the companion report. Evidence documented in the companion report underpins the impact pathway diagram and the key findings and recommendations in this report.

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<sup>5</sup> Outputs delivered by GGGI to achieve each intermediate outcome are not shown in the impact pathway diagram, to keep it concise and readable.

**FIGURE 1: Impact pathway for GGGI's Viet Nam Program (as of May 2020)**



## 4. Key findings and recommendations

Findings and recommendations are organized around 3 key evaluation questions.

- Question 1 - Has the program identified clear country goals/targets to aim for?
- Question 2 - Has the program identified, and made progress along, clear pathways to impact? What are the estimated impacts of the program?
- Question 3 – Has the program made progress towards impact at scale?

### 4.1 Question 1 - Has the program identified clear country goals/targets to aim for?

**FINDING 1:** Although not explicitly described in the current CPF, GGGI's programming in Viet Nam has been well guided by clear country goals and targets that are highly aligned to CPF priorities. Targets are drawn from key policies including the *Viet Nam Green Growth Strategy, Nationally Determined Contributions and Power Development Masterplan 2011-2020*.

An essential first step for a good impact pathway is having clear country goals/targets to guide all programming. Without this, programming efforts are at risk of drifting and impact pathways are less likely to emerge. The IPR found that the Viet Nam Program was actively guided by 3 main country goals/targets, as summarized below.

Goal	Target	Policy source
GHG emission reduction	Unconditional reduction of 8% from BAU levels by 2030 and conditional reduction of 25%. The unconditional target amounts to a reduction of around 63m tCO <sub>2</sub> eq/yr. <sup>6</sup>	NDC (2015)
	10-20% reduction of GHG emissions from energy activities by 2030, compared to business as usual (BAU) levels.	VGGS (2012)
Waste Management	60% of grade III cities have wastewater treatment systems that meet regulatory standards by 2020.	VGGS (2012)
	100% of solid waste in urban areas collected and treated by 2025, with 90% of this waste being recycled, reused, or recovered for energy.	VGGS (2012)
Renewable Energy	Increasing the share of installed capacity and electricity produced from renewable sources (excluding hydropower) to 21% (27.2 GW) and 10% (61.2b kWh) respectively by 2030.	Revised National Power Development Master Plan for 2011-2020 with a vision to 2030 <sup>7</sup> (2015)
	70% of municipal waste used for energy purposes by 2030	Renewable Energy Development Strategy 2030 with a vision to 2050 (2015)
	15-20% of electricity produced from renewable sources by 2030	Politburo Resolution on Orientations of Viet Nam's

<sup>6</sup> BAU emissions in 2030 are estimated to be 787m tCO<sub>2</sub>eq/yr.

<sup>7</sup> Commonly referred to as the Power Development Plan #7.

Goal	Target	Policy source
		National Energy Development Strategy to 2030 and outlook to 2045 (2020)

Though most are not mentioned in the CPF, these goals/targets are highly aligned to priority areas in the CPF. The review found these goals/targets to be mentioned frequently in the documents reviewed and/or by the staff interviewed by IEU. It was clear that they were influential in guiding programming choices in Viet Nam over the last 4-5 years. This high degree of goal clarity was key to helping clear pathways to impact to emerge, as discussed further in the next section.

In addition to the 3 goals above, the review found 2 additional goals that were prominent in guiding GGGI's work. These goals were not at impact level, but rather, sit at outcome or implementation level.<sup>8</sup>

- **Green finance:** There is no official government target for mobilizing green finance. However, the amount needed to implement the VGGS/NDC is estimated to be \$30 billion and government budgets are sufficient to cover only 30% of this.<sup>9</sup> This leaves a gap of \$21 billion that needs to be met through other sources, most likely private finance.<sup>10</sup> The goal of closing this gap has motivated much of GGGI's work in the programmatic solution area of *VGGS Implementation & Financing*.
- **VGGS implementation:** The VGGS has been one of the most important GoV policies for GGGI in the current CPF period and supporting its implementation has been a key priority. In fact, multiple parts of GGGI's work are directly linked to specific actions contained in the VGGS and its accompanying Action Plan, as summarized in the table below.

VGGS actions	GGGI support to implement the VGGS actions
<b>VGGS section IV(1a), (3d):</b> Provincial governments to integrate green growth into Socio-Economic Development Plans	Activities under Outcome 1.1 – Provincial Development Plans aligned with VGGS using GGGI manual
<b>VGGS section IV(3a):</b> MPI to undertake a 5-year review of the VGGS	Activities under Outcome 1.1 – Support mid-term review of the VGGS
<b>VGGS Action Plan, Activity 64:</b> Public investments to meet green economy standards	Activities under Outcome 1.2 – Investment Guidelines for Green Growth adopted by MPI to appraise public investments
<b>VGGS section III(14):</b> Financial institutions and businesses (especially SMEs) to pursue green growth	Activities under Outcome 1.3 – Green lending handbooks adopted, and green finance mobilized by the SME Development Fund
<b>VGGS section III(14):</b> Develop financial, credit and market instruments to support green growth	Activities under Outcome 1.4 – Regulatory guidelines developed on green bond issuance and 2 green bonds issued

<sup>8</sup> For this reason, they were not included in 'country goals' column of the impact pathway diagram, as this is intended for impact level goals/targets.

<sup>9</sup> [Access to GCF critical to mobilize resources for implementing Viet Nam's national green growth strategy](#), Viet Nam Environment Administration Magazine, 2015

<sup>10</sup> ODA flows are expected to decline moving forward as Viet Nam graduates to middle income country status, and are in any case insufficient given the size of the financing gap.

VGGS actions	GGGI support to implement the VGGS actions
<b>VGGS section III(11):</b> Revise urban master plans to achieve green urban development based on a green city index	Activities under Outcome 2.1 – Prime Ministerial decision adopted to green urban master plans and development, and Outcome 2.2 – Ministerial Circular on green urbanization indicators adopted

Overall, the Viet Nam Program is demonstrating good practice when it comes to identifying clear country goals/targets to guide programming. This should be maintained as GGGI moves into the next CPF period from 2021.

## 4.2 Question 2 - Has the program identified, and made progress along, clear pathways to impact? What are the estimated impacts of the program?

**FINDING 2:** At the end of its first 5-year CPF period, the Viet Nam Program has achieved solid progress that meets expectations for a ‘mature’ stage program. The scope of the Program has been expanded from 2 to 5 programmatic solution areas, with expansion occurring in a strategic and targeted manner. Some impressive policy outcomes have been achieved, and investment mobilization outcomes are also beginning to emerge, with \$60m in investment commitment achieved so far. From these outcomes, it is now possible to estimate quantifiable impacts relating to GHG emission reductions, job creation, waste management and clean energy.

### a) Programmatic solution: VGGS Implementation & Financing

#### What GGGI aimed to do:

GGGI’s work in this area is primarily linked to MPI and its mandate. MPI is a very important partner for GGGI, being the focal point for green growth and the lead ministry responsible for the VGGS. They are also the host ministry for GGGI’s operations in Viet Nam, and GGGI staff are located within MPI premises in Hanoi.

During 2015-16, GGGI began the CPF period by seeking a niche to support MPI with VGGS implementation (Outcome 1.1), with limited success. From 2017 onwards, GGGI adjusted its strategy to focus instead on mobilizing green finance for the VGGS. To this end, GGGI undertook several interventions:

- Mainstreaming green growth into MPI’s processes for appraising all public investments (Outcome 1.2)
- Greening the state-owned SME Development Fund (SMEDF) (Outcome 1.3)
- Undertaking a Climate Public Expenditure and Investment Review (CPEIR) for one province<sup>11</sup>
- Developing regulations for and supporting green bond issuances (Outcome 1.4)

The last outcome on green bonds is being supported by earmarked funding from Luxembourg from 2020-22.

#### Outcome progress:

To date, two policy outcomes have been successfully achieved in this programmatic solution area.

On Outcome 1.2, MPI adopted and began to use the *Investment Guidelines on Green Growth*, developed with GGGI and UNDP support. In 2018, it was reported that the guidelines had been applied to appraise several

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<sup>11</sup> This does not appear in the impact pathway diagram as no clear outcome could be identified for this work.

large infrastructure projects<sup>12</sup> with a total value of over USD 4 billion. This illustrates the potential of this policy outcome to nudge large volumes of finance in greener directions in future. Similarly, for Outcome 1.3, the SMEDF endorsed the use of green lending handbooks developed by GGGI for use in their future lending operations. All other outcomes were still in progress at the time of the review.

As noted earlier, a key country goal/target in this programmatic solution area is to help close the estimated \$21b financing gap needed to fund the VGGS. In this regard, IEU observes that GGGI interventions appear to have uneven potential to achieve this. The investment guidelines and green bonds work (Outcomes 1.2 and 1.4) appear more impactful, with potential to mobilize large volumes of international investment to support Viet Nam's green growth needs. By contrast, the work on the SMEDF (Outcome 1.3) and CPEIR only affects relatively small flows of domestic public finance. The total capital of the SMEDF is only \$88m, allocated from the state budget, and only \$325,000 of this amount has been allocated to 'green' SMEs so far.

**RECOMMENDATION 1:** If GGGI intends to continue working on the goal of *green financing* in next CPF period, GGGI Viet Nam should re-assess and prioritize resources (particularly core) towards financing instruments/modalities that have potential to significantly address the \$21b financing gap required deliver the VGGS.

#### Impact progress:

The *Investment Guidelines for Green Growth* were adopted by MPI specifically to help finance investments that would contribute to the achievement of the VGGS goals/targets. The successful achievement of this outcome can thus be counted as a contribution to the estimated impacts of:

- *7m people in urban green areas gain access to improved waste management services.* This represents the gap between current waste collection/treatment coverage in urban areas and the VGGS target of 100% coverage.
- *63m tCO2eq/yr of GHG emissions reduced by 2030.* This represents the total amount of emission reductions under Viet Nam's current conditional NDC mitigation target.

There is potential for additional impacts to emerge in future from other outcomes. For example, once green finance is mobilized via SMEDF (Outcome 1.3) and green bond issuances (Outcome 1.4), attributable impacts from projects receiving these funds are expected to arise.

#### **b) Programmatic solution: Green Urban Development**

##### What GGGI aimed to do:

In this programmatic solution area, GGGI's aim was to help MPI roll out implementation of the VGGS at city level, given that many of the green growth challenges, opportunities and goals described in the VGGS are concentrated in urban areas. GGGI's work focused on supporting two outcomes, in partnership with the Ministry of Construction:

- Prime Ministerial decision adopted on green urban master planning and development (Outcome 2.1)
- Ministerial circular adopted on green urbanization indicators to assess progress in the greening of cities (Outcome 2.2)

<sup>12</sup> The projects included land reclamation/resettlement for a new airport in Ho Chi Minh City and two metro rail lines in Ho Chi Minh City and Hanoi.

#### **Outcomes progress:**

Both outcomes have been achieved. Together, they represent one of GGGI's headline results in Viet Nam to date and helped raise GGGI's profile and reputation among Government and development partners.

The Prime Ministerial decision (Outcome 2.1) will require cities and provinces to revise a variety of urban strategies and masterplans to incorporate green growth targets and actions aligned to the VGGS. Only a few decisions are approved at Prime Ministerial level each year and only for issues deemed high priorities. This is a significant reform to the existing city classification system, which incentivizes provincial and city jurisdictions to pursue urban sprawl, infrastructure development and population growth over more sustainable, low carbon, compact patterns of city growth.

The green city indicators circular (Outcome 2.2) complements this by directing cities to measure and report their green urbanization progress using a prescribed set of indicators. Following the release of this circular, GGGI supported an initial 3 pilot cities to report on the required indicators in 2018. This review found that there had been good follow up by Government stakeholders after GGGI's exit, with an additional 5 cities following suit. Notably, one of these was the capital city, Hanoi.

#### **Impact progress:**

Both the PM Decision and Ministerial Circular were explicitly designed to help achieve the VGGS goals/targets. The successful adoption of these policies can thus be counted as a contribution to the impacts of:

- *7m people in urban green areas gain access to improved waste management services.* This represents the gap between current waste collection/treatment coverage in urban areas and the VGGS target of 100% coverage.
- *63m tCO2eq/yr of GHG emissions reduced by 2030.* This represents the total amount of emission reductions under Viet Nam's current conditional NDC mitigation target.

After unsuccessful efforts to raise earmarked funds, GGGI Viet Nam has made an understandable decision to exit from further work in this programmatic solution area.

### **c) Programmatic solution: Waste Management**

#### **What GGGI aimed to do:**

The VGGS includes several targets relating to waste management, including: (i) 60% of grade III cities with wastewater treatment systems that meet regulatory standards by 2020 (ii) 100% of solid waste in urban areas collected and treated by 2025. Moreover, GGGI's engagement with government officials from numerous provinces and cities clearly confirmed this as a high priority for those jurisdictions. GGGI has sought to address waste management via 2 outcomes:

- Investment mobilized for a wastewater treatment plant in Ben Tre (Outcome 3.1)
- Investment mobilized for a municipal solid waste to energy plant in Bac Ninh province (Outcome 3.2)

#### **Outcome progress:**

Outcome 3.1 was initiated at the request of GGGI HQ as part of the *Inclusive Green Growth Partnerships*, a flagship initiative of GGGI's leadership at the time. This initiative sought to partner GGGI with multilateral development banks to help direct their lending towards green growth projects. In Viet Nam, this led to GGGI partnering with the ADB to develop a pre-feasibility study for a wastewater treatment plant in Ben Tre. Ultimately, this was unsuccessful in being included in the ADB's lending pipeline, due to Ministry of Finance concerns about macroeconomic implications and increased lending costs.

For Outcome 3.2, GGGI has successfully mobilized \$60m of investment commitment for a 500 t/day, 10 MW municipal waste to energy plant in Bac Ninh province. The opportunity was identified following collaboration with the Finnish-funded *Energy and Environment Partnership Mekong Program*, who had already supported early stage development of the project. GGGI added value by helping the developer to improve the structure of the financing arrangements and bringing in two additional international financers. This reduced risks and made the project more feasible for local banks to co-finance. The hesitance of local banks to lend to such projects is a key financial barrier, so addressing this may help open up more local finance for similar projects in future.

#### **Impact Progress:**

Once the municipal waste to energy plant reaches financial closure and is built, the following estimated attributed impacts can be counted:

- SO1 - GHG emission reductions: 52,450 tCO<sub>2</sub>eq/yr or 1.05m tCO<sub>2</sub>eq over the 20-year life of the plant
- SO2 - Green job creation: 100 jobs
- SO3 – Access to waste management services: 684,000 beneficiaries; 175,000 t/yr of waste treated
- SO3 – Access to clean energy services: 49,400 beneficiaries; 10 MW / 84,000 MWh/yr capacity

#### **d) Programmatic solution: Solar PV**

##### **What GGGI aimed to do:**

The solar energy market is a crowded space in Viet Nam. The low base of installed capacity, potential size of the market, and recent decisions by the Ministry of Industry and Trade (MOIT) to extend solar feed-in tariffs has attracted interest from numerous players, including GGGI. After a period of scoping to identify suitable niches aligned with GGGI's mission and value add, GGGI Viet Nam decided to focus on rooftop solar for commercial and industrial entities.

GGGI's current focus is designing and mobilizing investment from domestic and international financers via a solar leasing finance facility (Outcome 5.1). The facility would be implemented via local banks and provide finance to ESCOs to provide commercial/industrial clients with leased solar energy services. Leasing models overcome the barriers of high upfront capex costs and long payback periods that deters uptake of solar under a purchasing model. This facility is intended to finance a project pipeline being developed by the *Clean Energy Investment Accelerator* (CEIA)<sup>13</sup>, with whom GGGI partnered for this purpose.

##### **Outcome progress:**

At the time of the review, GGGI was still working towards securing investment commitment from several domestic and international financers. The total amount of investment under discussion was at least around \$20m. One of the challenges being faced here is that a clear project pipeline is not yet available, making it difficult for some financers to commit. GGGI Viet Nam is currently investigating whether it may be necessary to engage directly in pipeline development to avoid the risk of its financing work becoming stranded.

##### **Impact progress:**

It is possible to estimate the following attributed impacts from the solar leasing finance facility, though they cannot yet be counted as confirmed until the investment commitment outcome is achieved.

- SO1 - GHG emission reductions: 32,300 tCO<sub>2</sub>eq/yr or 646,000 tCO<sub>2</sub>eq over the 20-year life of rooftop solar installations

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<sup>13</sup> CEIA is a program run by a consortium of partners and funded by the 'P4G' initiative.

- SO2 - Green jobs created: 54
- SO3 - Access to clean energy: 30,400 beneficiaries; 25 MW / 51,000 MWh/yr capacity

### e) Programmatic solution: Biomass energy

#### What GGGI aimed to do:

The CPF identified renewable energy as a new area for GGGI to enter in 2016. Following discussions with MOIT, biomass energy was identified as a suitable niche. At the time, this was the only form of renewable energy for which feed-in tariffs existed, making it one of the more ‘bankable’ areas in the renewable energy space. GGGI’s work focused on 3 outcomes:

- Soc Trang government adopts a provincial biomass masterplan (Outcome 6.1)
- MOIT increases the feed-in tariff for biomass (Outcome 6.2)
- Investment commitment mobilized for biomass to energy projects (Outcome 6.3)

#### Outcome progress:

The Soc Trang biomass masterplan (Outcome 6.1) was finalized and adopted. It identified potential for 12-68 MW of biomass energy and an initial pipeline of 5 projects. The inclusion of these projects in the masterplan will enable their development and financing to be fast tracked later on.

On the biomass energy investment projects (Outcome 6.3), GGGI in partnership with GIZ undertook feasibility studies for 5 projects. Ultimately, none were successful in mobilizing investment commitment due to unfavorable market conditions in the sugar industry, which affected the willingness of sugar mills to participate.

Despite this failure, the financial analysis undertaken for these projects was developed into a knowledge product (*Insight Brief*) which was then used to make a case to MOIT that the feed-in tariff needed to be raised in order to successfully attract investment into biomass energy. This policy advocacy was successful in influencing a Prime Ministerial decision in March 2020 to raise the tariff from 5.8 cents/kWh to 7.03-8.47 cents/kWh depending on the technology used (Outcome 6.2). The merits of this work are discussed further in the next section.

#### Impact progress:

Both successful policy outcomes can be counted as contributing to the Government target of producing 2.1% of electricity (12 billion kWh) from biomass by 2030. This equates to an estimated 2.2m people using clean energy generated from biomass.

Following the completion of this work, GGGI Viet Nam chose to exit this programmatic solution area and focus on other renewable energy areas – eg: rooftop solar - due to the more favorable conditions for bankability and scale.

### f) Other areas/results: National Energy Development Strategy 2030

GGGI Viet Nam supported MOIT to undertake analysis on the opportunities, challenges and solutions needed to expand renewable energy in the medium/longer term. This analysis was used by the Government Politburo to inform a resolution<sup>14</sup>, published in February 2020, on the *Viet Nam National Energy Development Strategy to*

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<sup>14</sup> Resolution 55-NQ/TW of the Politburo on Orientations of Viet Nam’s National Energy Development Strategy to 2030 and Outlook to 2045, 11 February 2020

2030. A significant aspect of this policy is the decision to raise the share of renewable energy in primary energy supply from the current target level of 10% to a new, higher level of 15-20% by 2030.

This is a significant outcome in the Viet Nam context. Energy demand is expected to grow four-fold from 143b kWhr in 2015 to 572b kWhr in 2030. Meeting this demand would require building 77 new coal power plants by 2030, leading to a doubling of GHG emissions from 350m tCO<sub>2</sub>e to 787m tCO<sub>2</sub>e between 2010 to 2030.<sup>15</sup> For Viet Nam to move towards a low-carbon growth pathway, transitioning from coal to renewable energy is essential. This policy change, though modest, is a welcome step in the right direction towards realizing Viet Nam's green growth ambitions.

### g) Overall finding

In 2015, the baseline year of the current CPF, most of the impact pathway shown in **Figure 1** did not exist. At the time, only a small amount of programming had been commenced towards a few outcomes in the *VGGS Implementation & Financing* and *Green Urban Development* programmatic solution areas. No outcomes had yet been reported as achieved in 2015 and impact estimates were not possible at the time either.

In the 5 years since then, as GGGI Viet Nam approaches the end of the CPF period, much has been accomplished:

- **Expansion of programmatic solution areas:** The Viet Nam Program has successfully expanded from 2 initial programmatic solution areas (*VGGS Implementation & Financing* and *Green Urban Development*) in 2015 to 5 areas in 2020. This expansion has remained well aligned to the CPF priorities whilst being responsive to the changing needs/contexts of Government partners.
- **Sound programming choices:** Within the 5 programmatic solution areas, strong efforts have generally been made to target resources towards niches that align with GGGI's mission and value add. That said, there are some areas for improvement in this regard, as noted earlier in relation to green financing. Where mutually advantageous, GGGI Viet Nam has entered partnerships with various development partners (eg: UNDP, GIZ, Finland) with mostly good results to date.
- **Achieved outcomes leading to measurable impact:** As shown in the impact pathway diagram in **Figure 1**, GGGI has successfully achieved several impactful policy outcomes and is well positioned to do the same in mobilizing investment, with \$60m already mobilized. These outcomes are serving as pathways to quantified estimates of attributed and contributed impacts. For convenience, these results have been compiled into the **Table 1** below. In addition, all calculations for impact estimates are provided in **Annex 2**.
- **Mobilization of earmarked funding:** In line with the overall GGGI strategy, GGGI Viet Nam has taken active steps to make the transition from core to earmarked funds. This effort has begun to bear fruit, with Luxembourg agreeing to provide \$2.7m to support the green bonds work (Outcome 1.4). Other promising opportunities, such as with the EU, are well advanced in the resource mobilization pipeline for the country program.

Overall, these results can be considered excellent for a 5-year old country program that has reached a 'mature' stage of growth, and provides a strong platform to tackle the next big challenge in the next CPF period: delivering impacts at scale. This topic is the focus of the next part of the review.

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<sup>15</sup> *Implementation of NDCs: Vietnam*, German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, 2017

**Table 1: Contribution of the Viet Nam Program towards GGGI targets in *Strategy 2030* (as of June 2020)**

PROGRAMMATIC SOLUTION	OUTCOMES		ESTIMATED IMPACTS (a = attributed, c = contributed)						
	Policies adopted	Investment commitment mobilized (million USD)	SO1 GHG reduced (a) (million tCO2eq)	SO1 GHG reduced (c) (million tCO2eq/yr)	SO2 Green jobs (a)	SO3 Access to waste mgt services (a) (millions people)	SO3 Access to waste mgt services (c) (millions people)	SO3 Access to clean energy services (a) (millions people)	SO3 Access to clean energy services (c) (millions people)
<b>ACHIEVED</b>									
VGGS Impl'n & Financing	2			63			as below		
Green Urban Devt	2								
Biomass energy	2								2.2
Waste management		60	1.049		100	0.684	7	0.049	
Other	1								
<b>TOTAL (2015-2020)</b>	<b>7</b>	<b>60</b>	<b>1.049</b>	<b>63</b>	<b>100</b>	<b>0.684</b>	<b>7</b>	<b>0.049</b>	<b>2.2</b>
<b>IN PROGRESS</b>									
VGGS Impl'n & Financing	2	30.3		as above					
Solar PV		20	0.646		54			0.030	3.5
<b>TOTAL (2015-2020)</b>	<b>2</b>	<b>50.3</b>	<b>0.646</b>		<b>54</b>			<b>0.030</b>	<b>3.5</b>
<b>GGGI TARGETS (2017-2030)</b>	-	<b>16,000</b>	<b>1,000</b>	<b>1,600</b>	<b>2,000,000</b>	<b>80</b>	<b>400</b>	<b>30</b>	<b>90</b>

### 4.3 Question 3 – Has the program made progress towards impact at scale?

**FINDING 3:** The Viet Nam Program has identified and tested at least 4 solutions for potential to scale. Of these, 1 solution successfully demonstrated commercially viability (municipal solid waste to energy), 1 solution is still in progress (rooftop solar) and 2 solutions proved unsuccessful initially (wastewater treatment and biomass energy).

In the unsuccessful areas, GGGI has chosen to exit these areas of work, allowing limited core resources to be allocated towards searching for and testing other promising solutions. In the case of biomass energy, the Viet Nam Program also successfully used lessons and analysis from the unsuccessful pilot to leverage a very strong policy outcome (adjustment to biomass feed-in tariff levels), which deserves to be recognized as a ‘best practice’ within GGGI and attempted more often.

In the case of municipal solid waste to energy, there is a recognition and intent by GGGI Viet Nam to seek opportunities and earmarked resources to try and replicate this solution to address waste management challenges in Viet Nam at a meaningful scale.

#### a) GGGI’s policy and approach to scaling

As part of the ongoing improvement of the IPR methodology, IEU has sought to improve the way it assesses country programs against this question. This has been done by developing an explicit, general hypothesis on how GGGI aims to deliver impact at scale. Doing this is necessary because GGGI currently has no document that clearly and officially states the organization’s expected approach to scaling.

That said, GGGI has does have some official policy positions relevant to the question of scaling in *Strategy 2030*, which are worth summarizing here:

- **Why scale?** GGGI aspires to achieve “transformational impacts” in member/partner countries, meaning impacts that match the scale of green growth needs/ambitions in countries.<sup>16</sup> The primary impacts of interest are the six GGGI strategic outcomes. For the first time in the Institute’s history, *Strategy 2030* sets ambitious, long-term targets against these impacts to strive towards, reflecting the organization’s aim of delivering transformative results.
- **How to scale?** GGGI aims to use markets as a means to achieve impact at scale. The approach involves testing and proving the commercial viability of “innovative solutions”<sup>17</sup>, implying that the term “solutions” in fact refers to investment projects. Where these pilots prove successful in attracting commercial (or near commercial) investment, then they would be replicated, either directly by GGGI or by others convinced by the pilot.<sup>18</sup> To accelerate these efforts, GGGI would also address any critical policy or financial barriers that hinder replication/scaling efforts.

It is important to note here that along the spectrum from ‘not bankable’ to ‘bankable’, GGGI’s strategy is to generally focus on green solutions that are ‘close to bankable’, where there is a role for GGGI as an publicly-funded organization to intervene. GGGI should try to avoid solutions that are already bankable

<sup>16</sup> p.ix, GGGI Strategy 2030

<sup>17</sup> p.vii, GGGI Strategy 2030

<sup>18</sup> For this ‘demonstration effect’ to occur, GGGI would first need to communicate the results of its tests/pilots to other project developers and investors in the market. Knowledge sharing thus needs to be recognized as an important part of GGGI’s scaling approach.

enough to expand and scale on their own without external support. This point regarding GGGI's niche/value add in the market was confirmed in a previous IEU evaluation in 2019.<sup>19</sup>

- **What to scale?** Being a relatively small organization, GGGI aims to prioritize its resources and expertise towards testing a limited set of solutions where it sees potential to achieve impact at scale.<sup>20</sup> The recent introduction of the 10 programmatic solutions was an effort to push country programs to focus in this manner.

To develop a GGGI hypothesis on scaling impact, IEU took the above policy positions and combined them with generic scaling frameworks available in the literature. The framework chosen for this purpose was one developed by the *International Development Innovation Alliance* (IDIA). This is a group of development agencies/donors<sup>21</sup> set up in 2015 to promote the role of innovation to meet the SDGs. It includes several core and earmarked donors to GGGI. The IDIA framework describes 6 general stages to scaling any kind of innovation, which are summarized at the top of **Figure 2** below. IEU has tailored this framework for GGGI's context by taking each of the 6 scaling stages and describing the ideal actions (based on the above policy positions) that GGGI country programs would take to deliver impact at scale – see **Figure 3** below.

It should be noted that IEU views the framework as a general guide to how GGGI country programs might approach scaling, not a rigid recipe to be followed. It is accepted that there may be activities taking place in country programs where, for good reasons, there is either no intention or need to scale or where the solutions or scaling approach may differ from the framework. Nevertheless, to IEU's knowledge, this represents the first attempt within GGGI to explicitly describe how the organization approaches scaling. In addition, the framework – being introduced and applied for the first time in this IPR – will continue to be refined as more IPRs are conducted and more practical examples of GGGI's scaling efforts come to light.

**FIGURE 2: Stages of scaling based on the International Development Innovation Alliance (IDIA) framework**



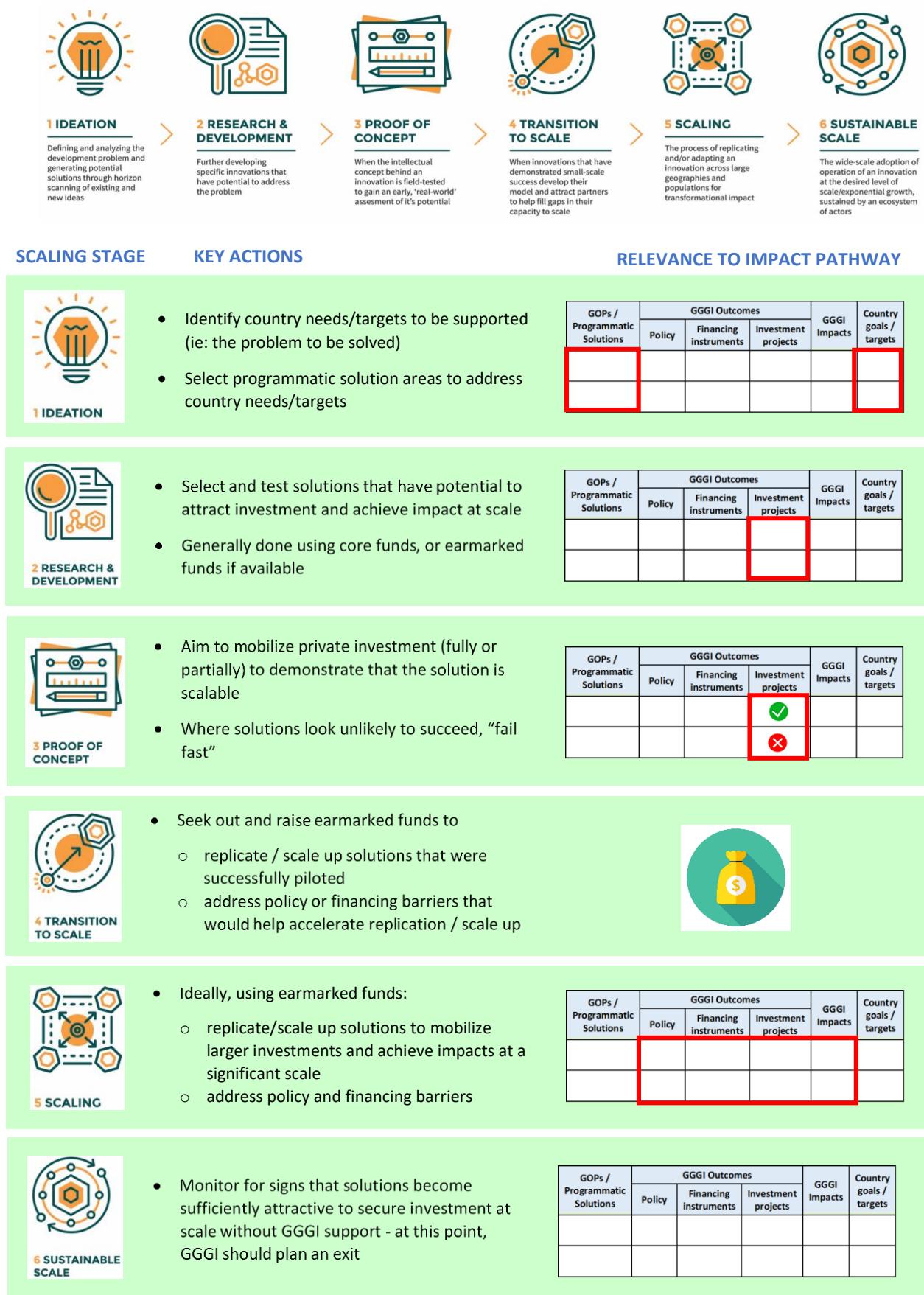
**RECOMMENDATION 2:** GGGI should consider developing clearer and more explicit guidance on its intended approach to scaling impact. This would help promote more strategic programming choices by GGGI country programs, and ultimately increase the organization's ability to realize the impact targets in *Strategy 2030*. This guidance could build on the scaling framework in this Impact Pathway Review, if deemed useful.

<sup>19</sup> See [Evaluation of GGGI's Green Investment Services](#), Impact & Evaluation Unit, 2019

<sup>20</sup> p.13, GGGI Strategy 2030

<sup>21</sup> Members include Australia, UK, Canada, Sweden, USA, World Bank, Bill and Melinda Gates Foundation, Rockefeller Foundation and Global Innovation Fund.

**FIGURE 3: GGGI Framework for Scaling Impact**



**b) Progress of the Viet Nam Program towards achieving impacts at scale**

Based on the above framework, the review identified 4 solutions identified and tested by the Viet Nam Program, aimed at solving two key problems/issues.

Primary problem/issue being addressed	Solution identified and tested
Waste management	Wastewater treatment plant
	Municipal solid waste to energy plant
Renewable energy	Biomass energy plant
	Rooftop solar for commercial and industrial entities

The progress made so far for each solution is summarized below.

Solution	Scaling stage						Progress / Status
	1	2	3	4	5	6	
Wastewater treatment plant							<b>Solution was unsuccessful.</b> Efforts to mobilize investment for the Ben Tre wastewater treatment plan in partnership with the ADB was unsuccessful. GGGI exited from this area of work.
Municipal solid waste to energy plant							<b>Solution was successful.</b> Investment commitment from development and private financers was mobilized for a municipal waste to energy plant in Bac Ninh province. The piloting of the solution has proven successful, with \$60m of investment commitment secured.
Biomass energy plant							<b>Solution was unsuccessful.</b> Efforts to mobilize investment for biomass energy projects were unsuccessful, and GGGI has exited from this area of work. However, financial analysis from the prefeasibility studies was used to successfully advocate for an increase in the feed-in tariff rate, thus addressing a key financial barrier. This will enable others to successfully develop biomass energy projects in future.
Rooftop solar for C&I entities							<b>Solution is still being piloted.</b> In partnership with the CEIA, GGGI is still in the process of trying to mobilize investment for leasing-based rooftop solar for commercial and industrial premises.

Key observations stemming from this summary are as follows.

- **Failing fast:** Two of the four solutions – wastewater treatment plants and biomass energy projects – were unsuccessful at attracting investment commitments. After these results, GGGI Viet Nam made decisions in both cases to exit these areas of work. The review supports these decisions. This is consistent with the idea of ‘failing fast’ in the innovation field and ensures more efficient use of limited GGGI resources.
- **Leveraging policy change from unsuccessful pilots:** In the case of biomass energy, the GGGI Viet Nam team deserves recognition and credit for salvaging an excellent policy result despite the unsuccessful efforts to attract investment to projects developed.

The financial modelling done as part of project pre-feasibility studies was used to develop policy advice (in the form of an “*Insight Brief*” knowledge product) to MOIT on the ideal feed-in tariff (FIT) level required to attract investment into biomass projects. This analysis was produced in partnership with GIZ, whom GGGI also collaborated with in developing the pre-feasibility studies. This informed a subsequent Prime Ministerial decision to raise of biomass FIT from 5.8 cents/kWh to 7.03-8.47 cents/kWh.

The decision to target reforms to FIT policies was a sound one. IEU reviewed 5 relevant studies on the effects of FIT policies in almost 500 national/subnational jurisdictions over a period of 7-22 years. The studies provided supporting evidence that, if designed well and deployed in the right circumstances, conducive FIT levels do lead to increased investment into renewable energy markets, especially in the early stages.<sup>22</sup> This was also seen in Viet Nam for example, where the introduction of a FIT for solar energy saw installed capacity jump from negligible levels to 5 GW between 2017 and 2019.<sup>23</sup>

This is an excellent (but rare) example within GGGI on how lessons from unsuccessful pilots can be used to leverage changes in barriers hindering investment. It demonstrated a degree of courage by the Viet Nam Program to openly display and discuss a “failure”, in an industry where there are often few incentives (and, in some cases, disincentives) to do so. The review finds this to be an example of a best practice that should be repeated more often in GGGI.

- **Successful testing of solutions:** Of the 4 solutions tested, the one that has advanced the furthest in terms of potential scaling is the municipal waste to energy project in Bac Ninh province. Investment commitment of \$60m has been successfully mobilized for this project from private and development financers, providing evidence of the commercial viability of this solution.

The proposed plant has a capacity to process 500 t/day of municipal waste. Bac Ninh generates around 890 t/day of waste, of which around 400 t/day goes untreated. This shows the potential of this solution to help address waste management challenges at a meaningful scale, if replicated in other urban centers around the country (where appropriate to do so given the local waste value chain situations).

Based on the scaling framework, the next stage would be to mobilize earmarked funds<sup>24</sup> to replicate similar projects in Viet Nam. Any identified policy/financing barriers hindering greater investment into this solution can also be addressed. Discussions with the GGGI Viet Nam team indicated they are thinking along similar lines and currently searching for such earmarked funding opportunities.

**RECOMMENDATION 3: Moving forward, the Viet Nam Program should build on the successful municipal waste to energy pilot and seek out additional opportunities and earmarked funds to replicate this solution and address related policy/financing barriers as appropriate.**

- **Solutions still being tested:** GGGI is still in the process of trying to ‘prove’ the commercial viability of solar rooftop for commercial and industrial entities based on a leasing model. In terms of the potential for impact at scale, the solution appears sound. The overall potential for rooftop solar in Viet Nam is estimated at up to 5 GW. If realized, this could make a significant contribution (almost 20%) towards the Government’s current overall target of 27 GW of installed capacity from renewable sources by 2030.

<sup>22</sup> The studies are listed in Annex 3. A summary of the findings has been made available in the *Green Growth Evidence Base* in GGGI’s sharepoint.

<sup>23</sup> [Vietnam’s solar drive, Global Data Energy, Power-Technology.com, 30 July 2019](#)

<sup>24</sup> Due to the limited and more flexible nature of core budget, it makes better sense to deploy this towards stages 1-3 of the scaling framework – ie: searching for and testing solutions, where the funds required are also relatively low. Earmarked budgets are better suited for use in stages 5-6 of the framework, where funds involved are greater and the case to justify this is stronger.

GGGI has partnered with CEIA on this effort. CEIA is responsible for developing a project pipeline while GGGI is developing a leasing finance facility. This partnership has obvious advantages but also risks, as GGGI is presently dependent on CEIA meeting its end of the bargain to succeed. As with any risk, this issue requires ongoing monitoring and mitigation strategies put in place, eg: a threshold point at which GGGI decides to step in and engage in project development work directly. There is presently no mention of this risk in *GGGI Online*, although discussions with the Viet Nam team indicate they are well aware of it.

**RECOMMENDATION 4:** Where the Viet Nam Program is working with partners to test and scale solutions, partner-related risks should be included in formal risk management tools/processes (eg: GGGI Online) and mitigation measures put in place to address the risk of partner-related failures.

#### 4.4 Overall conclusion

At the end of its first 5-year CPF period (2016-2020), the Viet Nam Program has achieved solid progress that meets expectations for a 'mature' stage program.

Over this time, the scope of the Program has expanded in a mostly strategic and targeted manner, guided by the CPF and relevant country goals/targets. From an initial focus on supporting *VGGS implementation* and *green urbanization* in 2015, the Program has since expanded to cover (at various points) *green financing, waste management, biomass energy and solar energy*.

Within these areas, the Program has pursued (or is still pursuing) 16 distinct outcomes related to policy, financing instruments and investment projects. The review found that, so far, GGGI's work had informed several successful policy outcomes, including:

- A Prime Ministerial decision setting out requirements for provincial and city governments on green urban planning and development
- A Prime Ministerial decision to raise feed-in tariff levels for biomass energy to more commercially attractive levels
- A new medium-term national energy strategy from the Government Politburo, which lifts the targeted share of energy supplied from renewables from 10% to 15-20% by 2030

Investment mobilization outcomes are also beginning to emerge, with \$60m in investment commitment achieved so far for a municipal waste to energy plant in Bac Ninh province.

Importantly, these outcomes are creating causal pathways from GGGI's work to impacts. Through this review, quantifiable potential impacts were estimated relating to: GHG emission reductions; job creation; waste management; and clean energy.

These findings provide strong assurance that the Viet Nam Program is progressing well on pathways to measurable impact. At the same time, some estimated impacts are of a modest size compared to the scale of the country's targets/needs. Finding ways to scale impact should thus be a key focus in the next CPF period.

The Program has identified and tested at least 4 'solutions with potential to scale. Of these, 1 solution successfully demonstrated commercially viability (municipal solid waste to energy), 1 solution is still in progress (rooftop solar) and 2 solutions proved unsuccessful initially (wastewater treatment and biomass energy).

In the unsuccessful areas, GGGI has chosen to exit these areas of work, allowing limited core resources to be allocated towards searching for and testing other promising solutions. In the case of municipal solid waste to energy, there is a recognition and intent by GGGI Viet Nam to seek opportunities and earmarked

**resources to try and replicate this solution to address waste management challenges in Viet Nam at a meaningful scale.**

## 5. GGGI Management Response

Recommendation	GGGI Management Response
<p>1. If GGGI intends to continue working on the goal of <i>green financing</i> in next CPF period, GGGI Viet Nam should re-assess and prioritize resources (particularly core) towards financing instruments/modalities that have potential to significantly address the \$21b financing gap required deliver the VGGS.</p>	<p><u>Response:</u> Agreed and adopted</p> <p>To support VGGS implementation, through the country's green urbanization efforts, GGGI Vietnam has mobilized \$60 M of investment commitment by developing one of the first modern municipal waste to energy projects in Vietnam in 2019. Another \$20 M financing is aimed to be mobilized through a solar financing facility for rooftop solar installations for industrial parks and other clustered commercial buildings in 2020.</p> <p>For the next biennium GGGI Vietnam commits to further strengthening its efforts on green investment mobilization, in particular from the private investors, given the decreasing availability of ODA grants, and highly concessional loans from the international public finance for Vietnam due to its graduation from low income country status. A total of \$108.5M green investment mobilization target is set for the 2021-22 through the green bond readiness project and the accelerating energy efficiency innovation project .</p> <p>For the next cycle of CPF during 2021-2025, a total of \$355 M is targeting to be mobilized over the course of 5 years of the CPF implementation. The next CPF 2021-2025 is planned to be developed in Q2 2021.</p> <p><u>Who will implement the response:</u> Vietnam Country Team</p> <p><u>Response to be implemented by:</u> Completed</p>
<p>2. GGGI should consider developing clearer and more explicit guidance on its intended approach to scaling impact. This would help promote more strategic programming choices by GGGI country programs, and ultimately increase the organization's ability to realize the impact targets in <i>Strategy 2030</i>. This guidance could build on the scaling framework in this Impact Pathway Review, if deemed useful.</p>	<p><u>Response:</u> Agreed and adopted</p> <p>Further scaling-up options of impactful programmatic solutions can be explored and included in the GGGI rolling 5 year roadmaps, which will be translated and reflected into 5 year Country Planning Frameworks</p> <p>All upcoming CPFs are adopting an impact pathway analysis to present a clear direction on programmatic choices directly contributing to Strategic Outcomes(SO targets) and Country's Green Growth goals. For the upcoming Vietnam CPF, options for scaling up impacts from the past five years (2015-2020) will be proposed reflecting the dynamic developed context of Vietnam will be presented.</p> <p><u>Who will implement the response:</u> GGGI in partnership with Strategy team.</p>

	<p><u>Response to be implemented by:</u> end of 2021</p>
3. Moving forward, the Viet Nam Program should build on the successful municipal waste to energy pilot and seek out additional opportunities and earmarked funds to replicate this solution and address related policy/financing barriers as appropriate.	<p><u>Response:</u> Agreed and Adopted</p> <p>Based on the lessons learnt both from successful MSW2E and unsuccessful biomass to power projects, for the next biennium 2021-22, GGGI Vietnam has a plan to scale up the waste to energy investment in Vietnam by setting up an investment-ready project pipeline through a financing facility. Initial buy-ins from in-country development financing institutions are mobilized on this project concept. The financial facility can be on a regional scale supported by regional DFIs and covering additional Mekong countries.</p> <p>GGGI aims to strengthen waste related policy support for Vietnam for the next biennium, by providing policy assessment, recommendations, and knowledge sharing on integrated waste management and waste 2 energy as part of a ASEAN regional project which is currently at proposal development stage. The good example of biomass FIT policy in Vietnam will be leveraged for more comprehensive policy support for Vietnam and other neighbouring countries.</p> <p>The upcoming CPF 2021-25 will have a focus on waste solution reflecting the above.</p> <p><u>Who will implement the response:</u> Asia regional office, Vietnam Office , Regional IPSD officer</p> <p><u>Response to be implemented by:</u> end of 2021</p>
4. Where the Viet Nam Program is working with partners to test and scale solutions, partner-related risks should be included in formal risk management tools/processes (eg: GGGI Online) and mitigation measures put in place to address the risk of partner-related failures.	<p><u>Response:</u> Agreed and Adopted</p> <p>The country level risk management framework has rolled out to countries in May 2020, and countries are in the process of implementing the RMF. GGPI front office will remind country offices on monthly updates on RMF in GO and will be guided to report assessments of partner related risk as part of the RMF. Together with partnership team, the partner related risk assessment will be consolidated and feed back into GGGI's partnership choices and decisions.</p> <p><u>Who will implement the response:</u> GGPI and Partnership</p> <p><u>Response to be implemented by:</u> completed</p>

## Annex 1 – List of GGGI projects

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No.	Year	Project title	Funding
1	2015-16	Urban Green Growth Action	Core
2	2017-18	Urban Green Growth Action, Phase 2	Core
3	2015-16	Project Design and Preparation	Core
4	2017-18	Scaling Up Biomass Waste to Energy	Core
5	2017-18	Enhanced Policy for Green Finance	Core
6	2019	Transitioning to a New Model of Urban Development in Vietnam	Core
7	2019	Viet Nam Distributed Solar – Solar Rooftop Leasing Finance	Core
8	2019-20	Promoting Greenovations through SMEs and Start-ups in Vietnam	Core
9	2020-22	Vietnam Green Bond Readiness Program	Earmarked

## Annex 2 – Impact estimate calculations

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### Notes:

- The table below provides supporting information on calculation steps and data sources used to produce the impact estimates in **Table 1**.
- The estimates below have been calculated based on guidance outlined in [GGGI Strategic Outcomes Guidelines](#). Estimates have been calculated in units of measurements consistent with the impact targets in Strategy 2030 to allow for easy comparison.
- IEU gratefully acknowledges the support of the GGGI Viet Nam team in providing many of the calculation steps and data sources below.

Estimated impact	Calculation steps	Data source
<b>SO1 GHG emissions reduced (attributed)</b> – Municipal solid waste to energy plant: 1.049m tCO <sub>2</sub> eq	(1) Estimated electricity generation capacity of municipal solid waste to energy plant = 84,000 MWh/yr (2) Viet Nam grid emission factor = 624.40 tCO <sub>2</sub> eq/GWh (3) Annual estimated emission avoided = (1) x (2)/1000 = 52,450 tCO <sub>2</sub> eq/yr (4) Estimated operating life of plant = 20 years (5) Cumulative estimated emission reductions over life of plant = (3) x (4) = 1,049,000 tCO <sub>2</sub> eq	GGGI project documents <a href="#">Review of the ADB Results Framework – Appendix A: Indicator Definitions, ADB, 2012</a>
<b>SO1 GHG emissions reduced (attributed)</b> – Solar Leasing Finance Facility: 0.646m tCO <sub>2</sub> eq	(1) Estimated investment = USD 20m (2) Investment rate = USD 0.8m/MW (3) Estimated electricity generation capacity = (1) / (2) = 25 MW (4) Estimated annual electricity production = 25 MW x 2,300 sunny hrs/yr x electricity generation factor 0.9 = 51,750 MWh/yr (5) Viet Nam grid emission factor = 624.40 tCO <sub>2</sub> eq/GWh (6) Annual GHG emission reductions = (4) x (5) / 1000 = 32,313 tCO <sub>2</sub> e/yr (7) Average life of rooftop solar installation = 20 years	GGGI project documents GGGI project documents GGGI project documents <a href="#">Review of the ADB Results Framework – Appendix A: Indicator Definitions, ADB, 2012</a> GGGI project documents

Estimated impact	Calculation steps	Data source
	(8) Cumulative GHG emission reductions = (6) x (7) = 646,260 tCO <sub>2</sub> e/yr	
<b>SO1 GHG emissions reduced (attributed):</b>  63m tCO <sub>2</sub> eq/yr	<p>(1) This figure represents the total annual emission reductions in 2030 (from BAU levels) that Viet Nam aims to reach under its NDC.</p> <p>(2) GGGI is contributing to the achievement of this entire amount, due mainly to activities such as the <i>Investment Green Growth Guidelines</i> (Outcome 1.2) and the <i>PM decision on green urban master plans and development</i> (Outcome 2.1), which cover all sectors.</p>	<a href="#"><u>Implementation of NDCs – Viet Nam Country Report, German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety, 2017</u></a>
<b>SO2 Green jobs created (attributed) – Municipal solid waste to energy plant:</b>  100 jobs	(1) Estimates obtained from feasibility study produced by project developer	GGGI project documents
<b>SO2 Green jobs created (attributed) – Solar PV:</b>  54 jobs	(1) GGGI Viet Nam estimates	GGGI project documents
<b>SO3 Access to sustainable waste management services (attributed) – Municipal solid waste to energy plant:</b>  0.684m people	<p>(1) Waste generation in urban areas = 0.7 kg/person/day</p> <p>(2) Waste generation in urban areas per annum = (1) x 365 = 255.5 kg/person/yr</p> <p>(3) Plant treatment capacity = 500,000 kg/day x 350 days of operation/yr = 175,000,000 kg/yr</p> <p>(4) Number of people benefiting from the plant's waste treatment services = (3) / (2) = 684,932 persons</p>	<a href="#"><u>Solid waste management in Ho Chi Minh City, Vietnam: Moving towards a circular economy?, Schneider, P., Anh, LH., Wagner, J., Reichenbach, J., Hebner, A., 2017</u></a>  GGGI project documents
<b>SO3 Access to sustainable waste management services (contributed):</b>  7m people	<p>(1) Projected urban population of Viet Nam by 2030 = 47.25m</p> <p>(2) Targeted rate of waste management coverage in urban areas = 100%</p>	<a href="#"><u>UN World Urbanization Prospects 2018 website, UN Department of Economic &amp; Social Affairs</u></a>  <a href="#"><u>Prime Minister Decision No. 1393/QD-TTg, Approval of the National Green Growth Strategy, Socialist Republic of Viet Nam, 2012</u></a>

Estimated impact	Calculation steps	Data source
	<p>(3) Baseline rate of waste management coverage = 85%</p> <p>(4) Gap in rate of waste management coverage = (2) – (3) = 15%</p> <p>(5) Number of people gaining access to waste management services = (1) x (4) = 7,087,5000 people</p>	<p><a href="#"><u>Solid waste management in Ho Chi Minh City, Vietnam: Moving towards a circular economy?</u></a>, Schneider, P., Anh, LH., Wagner, J., Reichenbach, J., Hebner, A., 2017</p>
<b>SO3 Access to clean energy services (attributed) – Municipal solid waste to energy plant:</b>  0.049 m people	<p>(1) Annual electricity generation of plant = 84,000,000 kWh/yr</p> <p>(2) Average annual electricity consumption per capita = 1,700 kWh/yr/person</p> <p>(3) Number of people gaining access to electricity from the plant = (1) / (2) = 49,411 people</p>	<p>GGGI project documents</p> <p><a href="#"><u>"Tiêu thụ điện mới bằng một nửa bình quân thế giới Việt Nam đã phải nhập khẩu năng lượng"</u></a>, Viet Nam Biz, 2017</p>
<b>SO3 Access to clean energy services (attributed) – Solar Leasing Finance Facility:</b>  0.03 m people	<p>(1) Annual electricity generation of plant = 51,750,000 kWh/yr</p> <p>(2) Average annual electricity consumption per capita = 1,700 kWh/yr/person</p> <p>(3) Number of people gaining access to electricity from the plant = (1) / (2) = 30,441 people</p>	<p>GGGI project documents</p> <p><a href="#"><u>"Tiêu thụ điện mới bằng một nửa bình quân thế giới Việt Nam đã phải nhập khẩu năng lượng"</u></a>, Viet Nam Biz, 2017</p>
<b>SO3 Access to clean energy services (contributed) – Biomass energy:</b>  2.2m people	<p>(1) Baseline electricity generation from biomass sources in 2017 is considered negligible = 0 kWh</p> <p>(2) Total annual electricity generation forecast for 2030 = 572,000,000,000 kWh/yr</p> <p>(3) Target for share of electricity generation from biomass by 2030 = 2.1%</p> <p>(4) Total electricity generation from biomass in 2030 = (2) x (3) = 12,012,000,000 kWh/yr</p> <p>(5) Projected annual electricity consumption per capita in Viet Nam in 2030 = 5,400 kWh/person/yr</p>	<p><a href="#"><u>International Energy Agency website – Viet Nam country profile</u></a></p> <p><a href="#"><u>Prime Minister Decision No. 428/QD-TTg on Approval of the revised national power development master plan for the 2011-2020 period with the vision to 2030</u></a>, Socialist Republic of Viet Nam, 2016</p> <p><a href="#"><u>Prime Minister Decision No. 428/QD-TTg on Approval of the revised national power development master plan for the 2011-2020 period with the vision to 2030</u></a>, Socialist Republic of Viet Nam, 2016</p> <p><a href="#"><u>Vietnam's crisis of success in electricity</u></a>, Dapice, D., John F. Kennedy School of Government, Harvard University, 2018</p>

Estimated impact	Calculation steps	Data source
	(6) Estimated number of people per annum accessing electricity produced from biomass in 2030 = (4) / (5) = 2,224,444 people	
<b>SO3 Access to clean energy services (contributed) – Solar leasing finance facility:</b> 3.5m people	(1) Baseline electricity generation from solar sources in 2017 is considered negligible = 0 kWh (2) Total annual electricity generation forecast for 2030 = 572,000,000,000 kWh/yr (3) Target for share of electricity generation from solar by 2030 = 3.3% (4) Total electricity generation from biomass in 2030 = (2) x (3) = 18,876,000,000 kWh/yr (5) Projected annual electricity consumption per capita in Viet Nam in 2030 = 5,400 kWh/person/yr (6) Estimated number of people per annum accessing electricity produced from biomass in 2030 = (4) / (5) = 3,495,556 people	<a href="#">International Energy Agency website – Viet Nam country profile</a>  <a href="#">Prime Minister Decision No. 428/QD-TTg on Approval of the revised national power development master plan for the 2011-2020 period with the vision to 2030, Socialist Republic of Viet Nam, 2016</a>  <a href="#">Prime Minister Decision No. 428/QD-TTg on Approval of the revised national power development master plan for the 2011-2020 period with the vision to 2030, Socialist Republic of Viet Nam, 2016</a>  <a href="#">Vietnam's crisis of success in electricity, Dapice, D., John F. Kennedy School of Government, Harvard University, 2018</a>

## Annex 3 – References

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