Global Green Growth Institute
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October 28, 2020 | Hybrid Meeting

Update on GGGI Efforts to Track and Report on Impacts

Purpose

1. This paper provides Members with an update on recent efforts by GGGI to enhance the way it tracks and reports on key results, including impacts. The Institute welcomes feedback or questions on this paper as part of the e-consultations.

GGGI's results reporting – current arrangements and new future requirements

2. Results reporting serves several critical purposes within GGGI:

   a) Demonstrates to Members what GGGI has achieved within their countries

   b) Demonstrates to funders what has been achieved from the money they provide to GGGI

   c) Informs management decisions to improve effectiveness of GGGI's operations.

3. To serve these needs, GGGI has progressively developed its results reporting system at multiple levels of the organization since 2015. The current results reporting arrangements (along with various plans being reported on) are summarized in the ***Figure 1*** below.

Figure 1: GGGI's results reporting system in 2020

LEVEL	PLANNING	RESULTS REPORTING (external)
1. Organization	a) 10-year and 2 yearly priorities set in *Strategy 2030* & *Work Program & Budgets* respectively b) Results indicators and targets are set in *Corporate Results Framework* that accompany these documents	c) Since 2016, organization-wide results are aggregated and published each year in GGGI's *Annual Reports* (against targets in the *Corporate Results Framework*)
2. Country Program	a) 5-year priorities set in *Country Planning Frameworks* b) 2-yearly priorities set in *Country Business Plans* (part of biennial *Work Program & Budgets*)	c) To date, no reporting occurs at this level. From 2021, annual results reports to be published for country programs, replacing 3c (see para 14 in this paper for details).
3. Project	a) Project objectives are described in project proposals b) Results indicators and targets are set in *logframes* that are part of project proposals	c) Since 2016, annual results reports published on website for all projects (against targets in *logframes*). d) In addition, customized reports are also prepared for earmarked donors in line with contractual obligations

4. Overall, this reporting system has served the organization's needs adequately from 2015 to 2020, the period of GGGI's *Strategic Plan 2015-20.* This has been recognized in external reviews of GGGI by core donors in recent years.

5. Notwithstanding this progress, there is a need to periodically improve the way GGGI reports results, including at the present time. The major reason for this is GGGI's transition from the *Strategic Plan 2015-20* to *Strategy 2030,* which introduces more ambitious demands that the current system is not yet fully equipped to meet. Specifically, under *Strategy 2030,* GGGI has formally committed to achieving a set of impact-level targets by 2030 as shown in ***Figure 2***.

Figure 2: GGGI impact targets under Strategy 2030

IMPACTS		
Strategic Outcomes (SOs)	GGGI attributed outcomes 2017-2030	GGGI contributed outcomes 2017-2030
1. GHG Emissions Reduction (Million tonne CO2e)	1,000	1,600
2. Direct Green jobs (Million jobs created)	2	4
3. Sustainable Services (millions of people)	200	500
• Energy access	30	90
• Sanitation	10	50
• Waste	80	400
• Transport	20	Not available
4. Air Quality Improvement	Not available	Not available
5. Natural Capital Protection (Millions of hectares)	0.5	20
6. Adaptation Services	8	16

6. While GGGI has been setting performance targets for itself since 2015, *Strategy 2030* marks the first time that targets have been set at the *impact* level. Previously, organizational performance targets had only been set at *output* and *outcome* levels.[1] This is a significant and concrete step forward in terms of GGGI's commitment to being a results-driven organization.

7. The adoption of these impact targets creates an obligation for GGGI to report to Council on progress towards them annually via GGGI's *Annual Report*. However, there are some challenges to doing this under GGGI's current reporting system, which the organization has identified and is taking steps to address.

[1] Like many other development organizations, GGGI sets and reports on 3 different types of 'results': (1) **Output** results are the finished products or services delivered by GGGI for target stakeholders – eg: policy advisory reports, feasibility studies for investment projects, etc. (2) **Outcome** results are generally the decisions or actions of target stakeholders that are influenced by GGGI's outputs – eg: government agencies adopting new/changed policies, investors committing to finance a project, etc. (3) **Impacts** are the final economic, social and environmental results arising from outcomes – eg: GHG emissions reduced, green jobs created, people benefited, etc. Within GGGI, impacts are also called **Strategic Outcomes**.

Tracking and reporting on impacts under *Strategy 2030* – the 'fragmentation' challenge

8. The main challenge to tracking and reporting on impacts in GGGI relates to fragmentation that occurs with reporting at project level. For example:

   a) Core funded and earmarked projects are reported separately, even though they may be linked in complementary ways.

   b) Project reporting is divided into annual slices, making it difficult to trace progress of some results across the years and creating issues with double counting of results.

   c) Different divisions within GGGI may create their own projects in a country for administrative reasons and report separately on these, even though they are linked in complementary ways.

   d) Project reporting obligations cease when a project is completed[2], meaning outcomes or impacts that arise after this time may not be monitored and reported.

9. Over the period of 2015-2020, this reporting approach has resulted in GGGI presenting its Members each year with an ever increasing number of unassembled jigsaw puzzle pieces, making it hard for audiences to see the complete picture of GGGI's results in each country. For example, anyone wishing to understand GGGI's results in (for example) Viet Nam in 2015 would only need to read 2 reports, whereas the same task in 2019 would require reviewing 14 reports.

10. In addition to obscuring the picture of GGGI's results (especially impacts) in each country, this fragmentation issue also creates a large number of 'accounting' issues when trying to aggregate results data up from project level to the organizational level. This problem is highly relevant to *Strategy 2030*, because tracking and reporting on GGGI's impact targets depend on this kind of aggregation being done accurately and smoothly.

Solving this challenge through 'impact pathways' for country programs

11. GGGI – through its Impact and Evaluation Unit (IEU) - has been working to solve this challenge. In early 2019, IEU developed a new results framework called an **impact pathway**, which enables results data from separate projects over multiple years to be combined into a single results story at country program level. In essence, impact pathways are a tool that enable the 'jigsaw puzzle pieces' to be put together more easily.

12. To test its effectiveness, IEU piloted the impact pathway framework in evaluations of two GGGI country programs in Mongolia and Viet Nam.[3] Copies of the final evaluation reports are available at **Attachments 1 and 2** and on GGGI's website at: https://gggi.org/results-evaluation/evaluations

13. Overall, the pilots successfully demonstrated the ability of impact pathway frameworks to address the fragmentation challenges described above. Specifically, some of key benefits observed included:

   a) **Enhanced (visual) clarity:** In both Mongolia and Viet Nam, the framework proved its capability of integrating all project results data into a single, coherent picture that could be expressed and easily digested in visual forms. Examples of impact pathway diagrams produced for the two country programs are shown in ***Figures 3*** **and** ***4*** below. Interactive

[2] Generally, this is defined as when all project outputs have been completed or budgets fully expended.

[3] To reflect the use of the new framework, these two country program evaluations were in fact called 'Impact Pathway Reviews'.

versions of these impact pathways built using 'Prezi' software can also be accessed on GGGI's website at: https://gggi.org/results-evaluation/evaluations

b) **Visibility of the entire results chain:** Impact pathways (as the name suggests) makes it easier to follow the causal links that flow along the 'results chain' from *outputs* to *outcomes* to *impacts* to *country needs/targets*.

c) **Quantification of impacts:** Impact pathways are not a tool to calculate impacts. For this task, GGGI developed and published the *Strategic Outcome Guidelines*[4], which outlines the technical methodologies for target setting and measurement of impacts. However, the impact pathways complement this by fitting impacts calculations into a broader country program context in a way that makes sense. ***Figure 5*** shows an example of the impacts calculated for GGGI's work in Viet Nam, stemming from the impact pathway review. This was the first time a complete set of impact calculations had been done for a country program in this way.

d) **Significance of GGGI's results in the country context:** Being able to quantify GGGI's impacts and compare these to relevant country goals/targets produce more meaningful insights into the significance of GGGI's contributions within the country. In Mongolia, it was discovered for the first time that GGGI's work had the potential to help reduce annual GHG emission reductions by a sizable amount, equivalent to 20% of the country's NDC target.[5]

e) **Policy-investment linkages that scale impact:** One of GGGI's most important value propositions is the way it seeks to combine its policy and investment work to leverage impacts at scale. For example, in Viet Nam, the evaluation highlighted how financial modelling undertaken for pre-feasibility studies for biomass energy (investment) projects was leveraged to influence an increase in feed-in tariff levels for biomass.[6] When well designed, feed-in tariff policies can help unlock clean energy investments at a larger scale than what a few pre-feasibility studies could achieve on their own. This is a textbook example of the 'transformational' work GGGI tries to undertake in all country programs, which is not easily visible in a more fragmented reporting approach.

[4] Available on GGGI's website at: https://gggi.org/report/gggi-strategic-outcomes-guideline-frameworks-and-methodologies-for-development-impact-estimation/

[5] This potential impact is attributable to 3 specific outcomes that GGGI is supporting the Government of Mongolia to achieve: (1) adoption of a regulation on energy efficiency standards and labelling for electrical appliances (2) implementation of energy efficiency measures by 15 entities designated as 'high energy users' under the national energy conservation law (3) energy efficiency retrofits of 375 residential apartment buildings in Ulaanbaatar.

[6] Of the targeted amount of electricity to be produced from renewables by 2030 under current Government policies (61.2b kWhr), around 20% is planned to come from biomass.

Figure 3: Impact pathway diagram for GGGI's Mongolia country program

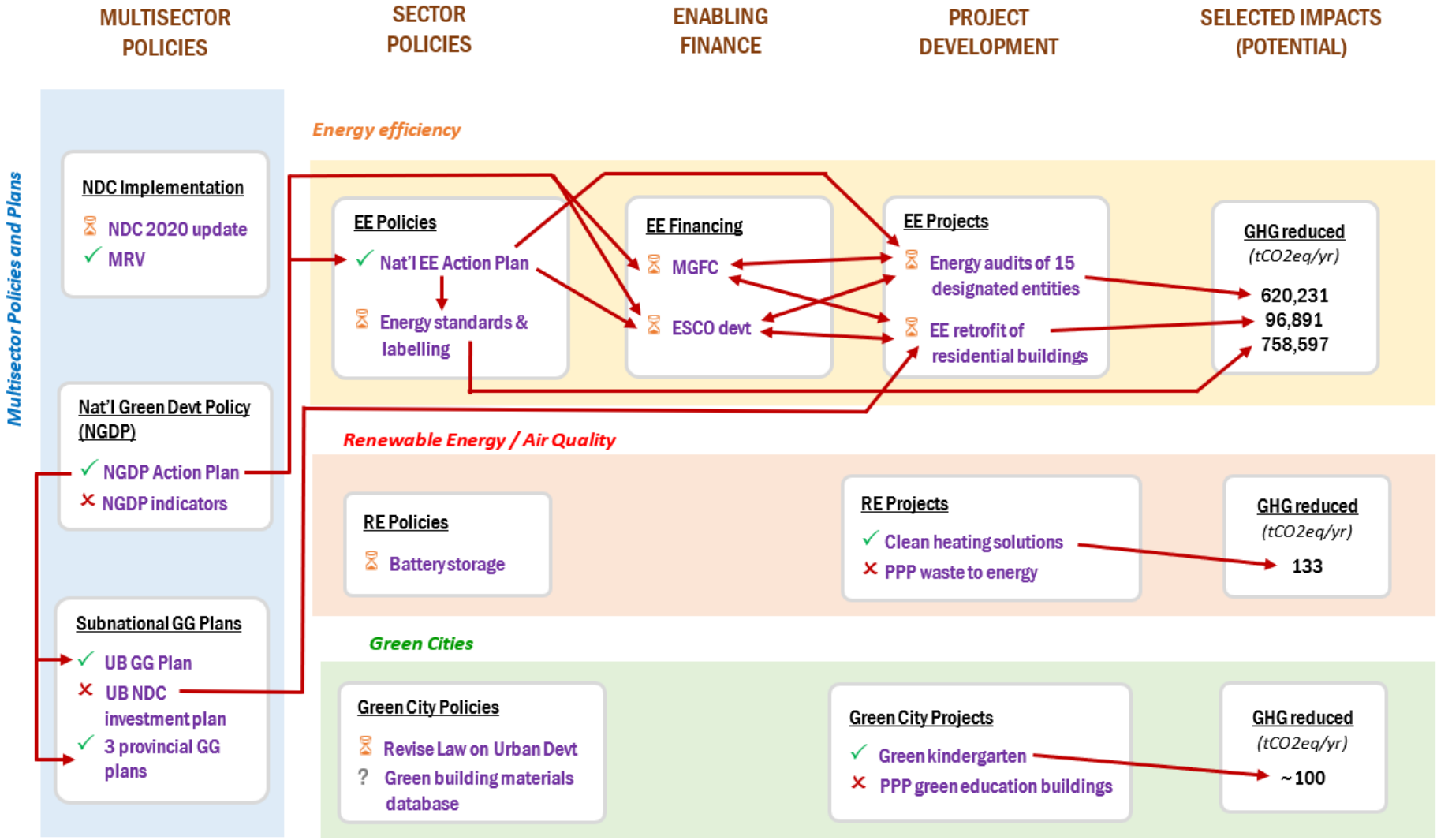

Figure 4: Impact pathway diagram for GGGI's Viet Nam country program

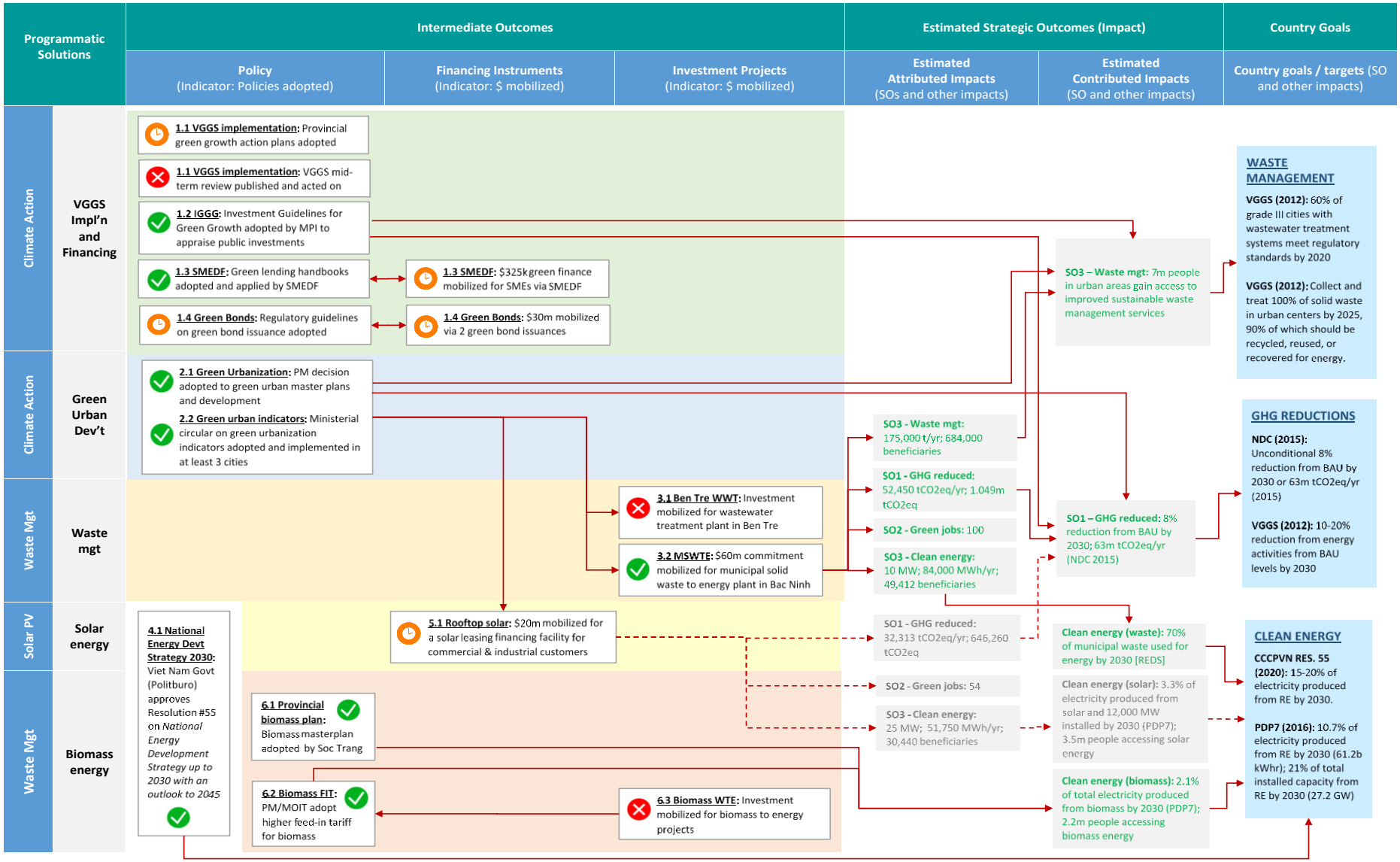

Figure 5: Summary of impacts from GGGI's Viet Nam country program for the period 2015-2019

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)
ACHIEVED									
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								
TOTAL (2015-2020)	**7**	**60**	**1.049**	**63**	**100**	**0.684**	**7**	**0.049**	**2.2**
IN PROGRESS									
VGGS Impl'n & Financing	2	30.3		as above					
Solar PV		20	0.646		54			0.030	3.5
TOTAL (2015-2020)	**2**	**50.3**	**0.646**		**54**			**0.030**	**3.5**
GGGI TARGETS (2017-2030)	**-**	**16,000**	**1,000**	**1,600**	**2,000,000**	**80**	**400**	**30**	**90**

Mainstreaming impact pathways into routine operations for all country program

14. Based on the positive results of these pilots, GGGI's Management requested the use of the impact pathway tool to be mainstreamed more broadly throughout GGGI's operations, beyond IEU's evaluation work.[7] Efforts to do this are currently underway, with a focus on the following areas:

    a) ***Country program planning:*** Internal policies on the development *Country Planning Frameworks* (CPF) have been revised in 2020 to incorporate the impact pathway framework. This means that, moving forward, GGGI should be presenting its medium-term (5 year) outcomes/impacts for a country program using this framework.

    b) ***Country program reporting:*** A matching change is being made on the reporting side. From 2021, GGGI will publish results reports for country programs on an annual basis on its website. This replaces the publishing of project level reports on GGGI's website, which took place from 2016-2019 (i.e.: in ***Figure 1***, item 2c will replace 3c).[8]

15. As a result of all the efforts described above, Members should be able to see the following benefits, starting as early as 2021:

    a) Quantified reporting of GGGI's progress towards the impact targets committed to in *Strategy 2030*.

    b) Improved quality of information on results achieved in GGGI country programs, with improvements taking the form of the benefits described in para 12.

Other future improvements to GGGI's results reporting system

16. Together, the above reforms provide a strong foundation for GGGI's results reporting system for the next decade (2021-2030), in line with the strategic directions set under *Strategy 2030.* In addition, other relevant improvement efforts that are ongoing or being considered for the future include:

    a) ***Accessibility of results information:*** Making it quicker and easier for key audiences to find results information on GGGI's website, by consolidating this information on a central and prominent location on GGGI's website and keeping it well updated.[9]

    b) ***Harnessing results information for resource mobilization:*** In general, the link between results and funding is much tighter for earmarked funding than for core funding. Since GGGI's earmarked funding is rising (both in proportional and dollar terms), results

[7] IEU only undertakes a small number (2-3) of country program evaluations each year, and is largely removed from day-to-day management of country programs. To reap the full benefits of the impact pathway tool, there was a need to extend its use beyond IEU's limited mandate.

[8] This change does not affect project reporting to earmarked donors, which will continue in line with contractual obligations. In addition, GGGI will continue to monitor operational performance (eg: output delivery, budget expenditure) of projects for internal oversight purposes.

[9] Most of GGGI's results information currently sits on multiple *Annual Report* websites, instead of GGGI's main website. Although a dedicated 'results' page does exist on the main website, the content requires major updates.

information needs to be seen and managed more effectively as a strategic asset that is critical to GGGI's financial welfare. Addressing the fragmentation and accessibility challenges above should make it easier for GGGI staff to quickly and easily find critical results information from relevant sectors/countries for preparation of funding proposals.

c) ***Progress reporting to Council:*** As requested by Council in 2019, GGGI is providing updates to Council on its results twice instead of once per year. This reporting will be done at the organizational level, against the *Corporate Results Framework*.

d) ***Evaluation of GGGI's performance:*** GGGI's actual results and achievements under both the original and the refreshed *Strategic Plan 2015-2020* will be the subject of an independent external evaluation, commissioned and managed by IEU. The evaluation is planned to be finalized and shared with MPSC and Council in 2021.

Conclusion

17. GGGI remains as committed as ever to realizing its vision of being a results-driven organization. We trust this paper serves as a useful update to Members on recent internal efforts to accomplish this. GGGI welcomes feedback, suggestions or questions on this paper during the e-consultations.

A/2020/8-C/2020/8
Attachment 1

Global Green Growth Institute

Impact Pathway Review: Mongolia Program

MAIN REPORT

Impact & Evaluation Unit

December 2019

Acronyms

ADB	Asian Development Bank
CPF	Country Planning Frameworks
CRM	Customer Relationship Management
DE	Designated entity
EE	Energy efficient / efficiency
ERC	Energy Regulatory Commission
ERP	Enterprise resource planning
ESCO	Energy service companies
ESL	Energy standards and labeling
GCF	Green Climate Fund
GG	Green growth
GHG	Greenhouse gas
GIZ	German Technical Cooperation Agency
GoM	Government of Mongolia
GTCK	Green Technology Center Korea
HCA	Host Country Agreement
IEU	Impact & Evaluation Unit
IPR	Impact Pathway Review
IPSD	Investment and Policy Solutions Division
L&D	Learning and Development
MCUD	Ministry of Construction and Urban Development
MET	Ministry of Environment and Tourism
MGFC	Mongolia Green Finance Corporation
MNT	Mongolian Tughrik
MRV	Monitoring, Reporting and Verification
MSFA	Mongolian Sustainable Finance Association
NAMA	Nationally Appropriate Mitigation Action
NDC	Nationally Determined Contributions
NEEAP	National Energy Efficiency Action Plan
NGDP	National Green Development Policy
OED	Operations Enabling Division
PCM	Project Cycle Management
PPP	Public-private partnership
RE	Renewable energy
SDC	Swiss Agency for Development and Cooperation
SO	Strategic Outcomes
SPC	Strategy, Partnership and Communications
UB	Ulaanbaatar
UNFCCC	United Nations Framework Convention on Climate Change
WPB	Work Program and Budget

1. INTRODUCTION

1.1 About Impact Pathway Reviews

Impact Pathway Reviews (IPRs) are the new term for country program evaluations undertaken by the Impact & Evaluation Unit (IEU). The new term reflects efforts by IEU to revamp the previous approach to country program evaluations, in order to:

- realign evaluations to better support GGGI's priority of delivering on its Strategic Outcomes;
- reduce the time and resources required to complete evaluations, making them more effective in supporting rapid learning and improvement in country programs, in line with the philosophy of GGGI's *iGROW* reforms;
- make communication of evaluation findings easier to digest and more meaningful for audiences.

In Q1 of 2019, 3 country programs were selected to undergo an IPR in 2019: Mongolia, Vietnam and Uganda. Mongolia is the first country program to undergo an IPR.

1.2 Mongolia IPR methodology and scope

The IPR for the Mongolia was carried out between April and October 2019 by IEU staff, including an in-country mission during 2-6 September 2019. The approach broadly followed the approach set out in the IPR Guidelines, and involved:

- a review of program documentation (Annex 2)
- interviews with internal and external stakeholders (Annex 3)
- a half-day workshop with GGGI Mongolia team to discuss the IPR findings and recommendations.

The scope of IPR covered 14 core and earmarked-funded projects between 2015-2019 in the areas of energy, green cities and green financing, which shared common impact pathways (Annex 1).

One project in the water area[1] was excluded because (a) it occupied a different impact pathway from everything else and (b) beyond this project, nothing had been done in water area since to progress toward impacts. For these reasons, doing a separate IPR analysis on water-related work was not seen as worthwhile.

1.3 Getting a clear picture of country programs – Impact Pathway diagrams

In order to evaluate the progress of the Mongolia Program towards impact, it was necessary to first gain a clear picture of what the country program looked like.

As noted above, between 2015-19 the Mongolia Program was made up of 14 projects. Each project comes with an accompanying set of documents – logframes, results reports and output documents. In total, key pieces of the picture were spread across +60 documents, stored mostly in personal drives. There is currently no requirement or method in GGGI's system to bring these various fragments together into a single country program-level theory of change/logframe or results report for internal or external audiences.[2]

[1] *Mongolia Water Nexus* project, part of a multi-country program with earmarked funding from SDC (2101MN).

[2] The country program review sessions conducted at GGGI Annual Meetings in recent years comes closest to doing this.

To overcome this, IEU experimented with a new technique for generating such a picture for the Mongolia Program, without unduly altering or misrepresenting the content of the underlying project logframes and results reports. The resulting product was the impact pathway diagram shown in **Figure 1** below.

1.4 How to read and interpret the impact pathway diagram

Value chain: All program activities have been mapped against various stages of GGGI's value chain (or a simplified version thereof). The value chain stages are indicated at the top of the diagram in **brown** text.

Themes: All country program activities can be grouped into 4 themes[3], as shown by the colored boxes. The themes are:

- Multi-sector policies/plans (**blue**)
- Energy efficiency (**orange**)
- Renewable energy / Air quality (**red**)
- Green cities (**green**)

Outcomes: Within these thematic groups, key program outcomes are shown in **purple** text. The current status of each outcome is summarized with various icons:

- ✓ = outcome achieved
- ⌛ = outcome in progress
- ✗ = outcome not achieved
- ? = unable to assess outcome

Causal pathways: The **red** lines in the diagram indicate the presence of a causal pathway, where work in one area contributes in some way to work in another area. The existence of these pathways has been determined through reviews of project documents and stakeholder interviews carried out by IEU.

Impacts: The diagram includes figures for selected impacts[4] that may potentially arise from some of the policy and project development work undertaken by GGGI. To keep the diagram readable, only selected potential impacts - GHG reductions - were included. However, a full summary of all the potential impacts that GGGI is currently estimated to achieve in Mongolia is contained in **Figure 2**.

1.5 Going deeper into the details of program activities and results

To keep the diagram and this report succinct, detailed descriptions of the activities and results of the Mongolia program are contained separately in Annex 4. An interactive Prezi-based presentation has also been prepared as a supplement to this report, which allows readers to 'zoom in' to any part of Mongolia's impact pathway to access further details. The Annexes and Prezi presentation have been published together with this report on GGGI's internal *Impact* sharepoint site.

[3] 'Theme' is defined here in the general meaning of the word, not the 4 thematic areas of GGGI.

[4] The term 'impacts' here includes GGGI's 6 strategic outcomes as well as other types of significant results.

FIGURE 1: Impact pathway diagram for GGGI's Mongolia program

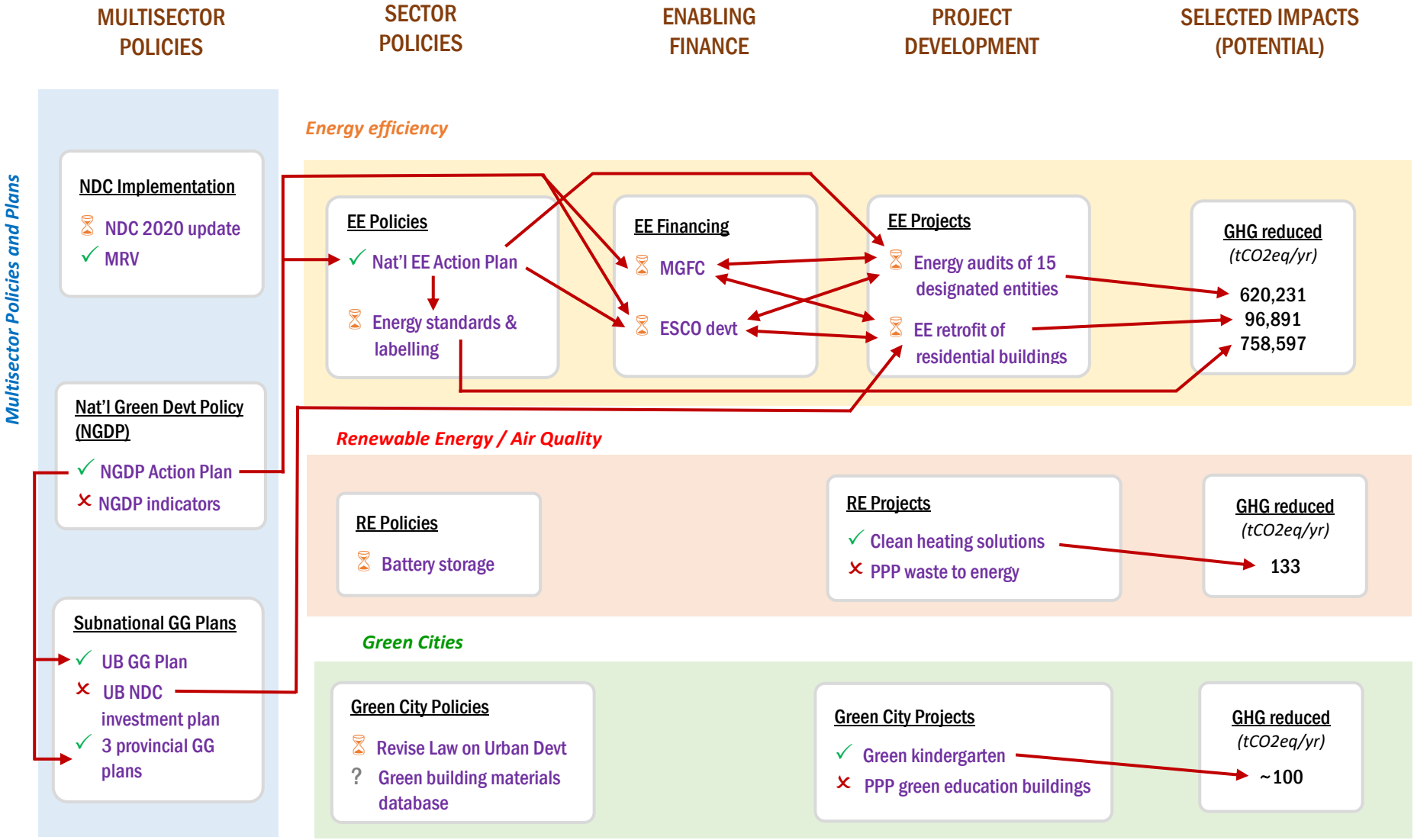

FIGURE 2: All potential impacts of the Mongolia country program

	Program area contributing to impact	Source of impact data	*Investor Commitment mobilized*	POTENTIAL IMPACTS					
				Monetary savings	*Reduced energy consumption*	*SO1: GHG reduced*	*SO2: Green jobs created*	*SO4: Improved air quality*	*Other impacts*
1	**ENERGY EFFICIENCY:** Energy audits of 15 designated entities (DEs)	Development of pilot energy efficiency projects in Mongolia – Final overall energy audit findings (Annex 2, Document #54, p.16)	**GIZ:** One of the DEs, Chingis Hotel, secured USD 10k from GIZ to install 2 variable frequency drives to air handling units, resulting in a 20% increase in energy efficiency	MNT 50,819m/yr, equal to around 19m USD/yr at time of writing (p.16)	**Electricity:** 259,770,378 kWh/yr (p.16) **Thermal:** 701,295 GCal/yr (p.16) **Coal:** 78,033 tonnes/yr (p.16)	620,231 tCO_2eq/yr (p.16)			
2	**ENERGY EFFICIENCY:** Energy efficiency retrofits of 375 residential buildings	NAMA Facility Project Outline 6th Call – Energy performance contracting for residential retrofitting in Ulaanbaatar (Annex 2, Document 53, specific page references are indicated for each impact)	**NAMA Facility:** EUR 18m (around USD 19.8m) being sought to retrofit 375 buildings (currently preparing detailed proposal to secure investor commitment) **GoM:** Based on earlier technical work, GoM committed USD 4.8m (MNT 12.8b) to an initial retrofit of 24 buildings		**Electricity:** 1,351 MWh/yr (p.5)	96,891 tCO_2eq/yr (p.5, 24)	1,068 new jobs created (p.19)		68,000 residents (14,766 households) benefit from more energy efficient housing (p.9)

	Program area contributing to impact	Source of impact data	*Investor Commitment mobilized*	POTENTIAL IMPACTS					
				Monetary savings	*Reduced energy consumption*	*SO1: GHG reduced*	*SO2: Green jobs created*	*SO4: Improved air quality*	*Other impacts*
			(separate from 375 buildings proposed to NAMA Facility)						
3	**ENERGY EFFICIENCY:** Mongolia Green Finance Corporation	GCF Funding Proposal – Mongolia Green Finance Corporation (Annex 2, Document #46, specific page references are indicated for each impact)	**GoM:** USD 5m equity, USD 13m loans (committed) (p.28) **MSFA:** USD 5m equity (committed) (p.28) **GCF:** USD 5m equity, USD 20m loans, USD 2m grants (not yet committed) (p.28)		**Coal:** 657,706 tons over 15 years saved from green affordable houses and thermal insulation of existing houses (p.31)	3,386,335 tCO_2eq over 15 yrs (p.1, 50)	2,000 jobs created (40% for women) (p.3, 41)	PM10 in Ulaanbaatar reduced by 24 tons in first year and 769 tons over 15 yrs (p.31) PM2.5 in Ulaanbaatar reduced by 17 tons in first year and 535 tons over 15 yrs (p.31)	104,602 people (50% women) directly benefit from access affordable green financial products (p.3)
4	**ENERGY EFFICIENCY:** Energy Standards and Labelling program	Market scoping, program design and impact assessment for a Mongolian S&L program (Annex 2, Document #29, p.61, table 5.21)			Electricity: 618 GWh/yr by 2030 (p.61, table 5.21)	758,597 tCO_2eq/yr by 2030 (p.61, table 5.21)			
5	**RENEWABLE ENERGY:** Low carbon boiler for School #122	Low carbon heating for off grid buildings - Business case for 122 public school (Annex 2,	**GoM:** MET has committed USD (TBC) / MNT (TBC) to replace heat only boiler at School 122			133 tCO_2eq/yr (p.45)		42 t/yr of NOx/SOx/CO reduced (p.45)	

	Program area contributing to impact	Source of impact data	*Investor Commitment mobilized*	POTENTIAL IMPACTS					
				Monetary savings	*Reduced energy consumption*	*SO1: GHG reduced*	*SO2: Green jobs created*	*SO4: Improved air quality*	*Other impacts*
		Document #57, p.45)	with ground-source heat pump						
6	**GREEN URBAN DEVT:** Green kindergarten building in 25th khoroo, Songino-Khairkhan district	Greening Public Buildings in Mongolia (Annex 2, Document #61, p.13)	**ADB:** USD 600,000 committed (as part of a USD 50m loan package) to construct the green kindergarten, mobilized by GoM (not GGGI)	MNT 1,192m in estimated lifetime benefits, including O&M cost savings, and public health and environmental benefits, equal to around USD 446k at time of writing (p.13)	**Coal:** 68-89 tons/yr (p.13)	92-120 tCO_2eq/yr (p.13)			
	TOTAL GGGI IMPACTS QUANTIFIED (Unless otherwise indicated, totals include all individual impacts listed above)		**USD 28.41m mobilized** (Chingis Hotel - $10k, Retrofit of 24 buildings - $4.8m, MGFC - GoM $18m and MSFA $5m, Green kindergarten - $600k)	**USD 19.4m saved, mainly from improved energy efficiency**	**Electricity: 879 GWh/yr** **Thermal: 701,295 GCal/yr** **Coal: 78,101 tonnes**	**1,475,944 tCO_2eq/yr** (Includes 15 DEs, retrofit of 375 residential buildings, ES&L program, HOB replacement for School 122, and the green kindergarten. **This potential impact equals 20% of the annual GHG reductions Mongolia aims to achieve in 2030 under its NDC.** (Note: MGFC excluded as its potential impacts are based on	**3,068 new jobs created**	**83 t/yr of air pollutants (NOx, SOx, CO, PM10, PM2.5) reduced**	**68,000 residents gain access to more energy efficient housing**

	Program area contributing to impact	Source of impact data	*Investor Commitment mobilized*	POTENTIAL IMPACTS					
				Monetary savings	*Reduced energy consumption*	*SO1: GHG reduced*	*SO2: Green jobs created*	*SO4: Improved air quality*	*Other impacts*
						broad market assessments, and will likely change depending actual projects that MGFC finances.)			
	GOM TARGETS	Mongolia NDC (for SO1, SO3) National Program for Reducing Air and Environmental Pollution, as reported by GGGI (for SO4)				**Reduce GHG emissions by 7,168,000 tCO_2eq/yr by 2030 from BAU levels**		**Reduce PM2.5 to 70 mcg/m3 by 2025 (from 256 mcg/m3 in 2016)** **Reduce PM10 to 100 mcg/m3 by 2025 (from 279 mcg/m3 in 2016)** **Reduce SOx to 50 mcg/m3 by 2025 (from 89 mcg/m3 in 2016)**	**Reduce building heat loss by 40% by 2030 (from 2014 levels)** **Increase renewable capacity from 7.6% in 2014 to 30% in 2030**

2. IPR FINDINGS & RECOMMENDATIONS

Findings and recommendations are organized around 4 main questions:[5]

1. Has the program identified clear goals to aim for?
2. Has the program identified clear pathways to get there? Is progress being made along those pathways?
3. What are the potential or actual impacts of the program? Is the program pursuing ways to scale up impact?
4. Are GGGI's business reforms supporting delivery of impact in Mongolia? What is working well and what could be improved?

2.1 Has the program identified clear goals/impacts to aim for?

FINDING 1: Within the boundaries set by the CPF, the Mongolia Program has managed to identify clear goals in some areas (energy efficiency, renewable energy/air quality) but less so in others (green cities).

An essential foundation for a strong impact pathway is for programs to have a clear sense of the end goals/impacts at the end of the pathway. Otherwise, as the saying goes, "if you don't know where you're going, any road will take you there".[6]

In GGGI, setting such goals is partly the function of Country Planning Frameworks (CPF). The Mongolia Program was among the first to produce a CPF in 2015, in consultation with the GoM. The CPF gave the Program a general direction and broad thematic boundaries for a 5-year period (2016-2020):

- Transition towards renewable energy and improve energy efficiency
- Accelerate urban green infrastructure development
- Strengthen water management

Since the CPF was adopted, the Program has stayed disciplined and stuck to programming within these 3 areas. That said, the boundaries set by the CPF still cover a large potential area, so the Mongolia Program has needed to home in further on more specific, measurable goals.

The IPR finds that such goal clarity/specificity has emerged to various extents in the energy efficiency and renewable energy/air quality areas. Notably, the Program has fixed its sights on a core set of GoM targets, including some from Mongolia's NDC: reducing GHG emissions by 14% by 2030; increasing renewable energy capacity to 30% by 2030; and reducing building heat loss by 40% by 2030. Other important goals for the Program include GoM's air quality targets for PM2.5, PM10 and SOx to be achieved by 2025, which from the GoM perspective is perhaps an even higher domestic priority than climate change mitigation.

Goal clarification has not yet happened in the areas of green cities. This is not due to a lack of want or ability, but because programming in these areas has been quite limited to date - programming in the green cities area only started in 2017. Hence the need to perform this task has not been as urgent as other areas where more resources were being invested. The Program also views some of its work in the energy efficiency area (notably retrofitting of residential buildings) as overlapping to the green cities area (although IEU did not reflect in the impact pathway diagram, in order to keep it simple).

[5] Questions 1-3 are based on the IPR methodology developed by IEU in its *IPR Guidelines* (v0.1). Question 4 was not in this version of the guidelines but later added to the IPR exercise given its relevance to the ability of Programs to deliver impact.

[6] Attributed variously to Lewis Carroll's Alice in Wonderland and former Beatle, George Harrison.

FINDING 2: The program has gone a step further with goal setting, and begun to quantify its estimated impacts in various areas. The development of these estimates tends to happen during implementation rather than upfront.

Program goal setting is increasingly happening in relation to GGGI's 6 Strategic Outcomes (SO). Learning to do this well is part of GGGI's strategy to secure its longer-term financial sustainability, by demonstrating itself as an impactful organization. GGGI remains at an early stage of this journey, with still much to learn and improve. Hence, the IPR looked specifically at Mongolia's experience to identify potential lessons.

In rolling out the SO agenda, HQ recently ran a corporate exercise seeking 3 types of goals/targets from country programs, with the aim of aggregating these into organization-wide targets for *Strategy 2030*:

1. Goals/targets of partner countries that GGGI wishes to support;
2. Targets relating to the quantified estimated impacts of current program activities;
3. Targets relating to the quantified estimated impacts of current program activities, if scaled up.

The IPR found that the Mongolia Program has generated several impact estimates relating to (2) and (3), as shown in **Figure 2** above. These numbers will be discussed more below, so we save this discussion for later. However, it is worth noting here that such estimates were mainly possible for program activities that had moved well into implementation. In these cases, outputs had been delivered (with the help of external experts) that contained technical analysis and calculations relating to potential impacts.

Despite having such estimates available, the Program experienced difficulties in complying with requirements of the corporate target setting exercise. This was due to the technical challenges of trying to convert available estimates into the submission formats and calculation methods required by the corporate templates/guidelines.

2.2 Has the program identified clear pathways to get to impact? Is progress being made along those pathways?

FINDING 3: In the energy efficiency area, strong pathways to impact have been identified. Steady progress is being made against these pathways. The Program has a solid track record in terms of delivering outputs. Achievement of many critical outcomes needed to realize impacts is still a work-in-progress.

In 2015, the Mongolia Program was firmly situated at the left side of the value chain, working mainly with the Ministry of Environment and Tourism (MET) on the National Green Development Policy (NGDP) and related issues.

Since then, the Program has made a series of programming (and partnership) choices in the energy efficiency area that together created a pathway to the right side of the value chain. As a result, the Program is now positioned within 'striking distance' of measurable impacts.

These pathways run through specific niches identified by the Mongolia Program, including: energy standards and labeling; energy efficiency retrofits of residential buildings; and assisting high energy consumers (based on thresholds under Mongolia's Law on Energy Conservation) to reduce energy use.

These are not just a series of disconnected activities along the value chain. The IPR found clear and logical causal connections between many of the activities (as shown in the diagram in **Figure 1**). Downstream efforts to develop investable project opportunities in energy efficiency have been strategically linked to mid-stream

efforts to reduce/remove financing barriers. This is being done mainly through attempts to deliver cheaper, green financing via the establishment of the Mongolia Green Finance Corporation and stimulating a range of financing modalities (particularly ESCOs) to help the energy efficiency market take off. More recently, the Program has also worked to develop government incentives that could enhance the risk-return profile of energy efficiency investments.

Key success factors that have enabled the emergence of a strong impact pathway include:

- Many of GGGI's programming choices were informed by a single diagnostic study undertaken during 2014-15, the *Strategies for Development of Green Energy Systems in Mongolia (2013-2035)* report. This has proven to be a highly influential piece of work that provided a roadmap to guide programming in energy-related areas.
- Progress in the energy efficiency area has been underpinned by strong partnerships with strategic counterparts. The Mongolia Program was able to expand beyond the initial host counterpart – MET – and forge new relationships with others, including the Energy Regulatory Commission (ERC)[7], Ulaanbaatar Government, and financial sector actors (Mongolian Banker's Association/Mongolian Sustainable Financing Association).
- The Mongolia Program has enjoyed stability in key energy staff in the country team, which has been a key factor in driving progress. By comparison, there has been greater turnover in green cities-related staff in the country team and thus less progress has been made in that area.
- Ability to access technical expertise, either internally or through outsourcing, has become increasingly critical as the Program has moved towards the right of the value chain. Some of this expertise has been accessed internally, primarily from IPSD, where available. However, given the breadth of issues that the Program works on (even just in energy efficiency alone), the need for outsourcing has been inevitable. Sufficiency of resources in past years to procure outside expertise where needed has thus been essential to the emergence of a strong impact pathway.

Having confirmed that the Mongolia Program has established solid pathways to impact in energy efficiency, the next question is how much progress is being made along those pathways? On this question, the IPR has the following key findings.

Outputs: Progress in delivery of outputs is not shown in the impact pathway diagram in **Figure 1**. However, in general, the IPR found no problem here. The Program has delivered everything it has promised to deliver (in logframes) in a relatively timely manner. Based on stakeholder interviews, the consensus amongst Mongolian partners is that GGGI is a reliable performer in this regard and the technical quality of work is high.

Policy outcomes: On the left side of the pathway, progress in achieving policy outcomes appears positive overall.

- The NGDP Action Plan and National Energy Efficiency Action Plan (NEEAP) – both of which GGGI helped to prepare - were officially approved by the government. These policies provided the mandate (as well as intelligence and relationships) for the Program to move into several downstream areas.
- The Ulaanbaatar NDC investment plan ultimately failed to gain approval from the Ulaanbaatar Government. However, it was a "successful failure" in the sense that it led to further downstream opportunities to work with Ulaanbaatar Government on retrofitting of residential buildings.
- The energy standards and labeling (ESL) policy is currently awaiting adoption by the government and stakeholders were optimistic that this would happen within 6- 12 months. This work stands out as

[7] ERC is Mongolia's energy regulator and has a mandate to develop policies and regulations for all energy projects.

particularly impactful. As an enforceable regulation (rather than voluntary policy/plan), ESL has potential to directly trigger quite sizable impacts, with estimated GHG reductions of around 758,000 tCO_2eq/yr. Though direct ex-post monitoring of these impacts is not possible, evidence reviewed by IEU[8] from similar regulations in other countries suggests that ESL does indeed lead to uptake of energy efficient products and reduced energy use.

Project development and financing outcomes: These outcomes were mostly in progress at the time of review.

- The likelihood of a successful outcome for MGFC remained unclear at time of writing and was mostly dependent on a GCF decision on whether to finance the initiative. Although investor commitment from some partners has been reported internally as achieved, GCF has not yet committed, and the MGFC will probably not proceed unless they do. At present, stakeholders hope that the GCF will put the MGFC proposal to their Board for approval in March 2020. The MGFC can be characterized as a high-risk, high-reward solution to tackle financing barriers. However, GGGI's decision to pursue the MGFC instead of easier alternatives has been supported in a recent external review commissioned by GCF, which found that *"the MGFC is indeed the right answer in addressing the market gap for green finance in Mongolia"* and *"has the potential to become a transformative institution"*.[9] Whatever the eventual outcome, the MGFC stands as a good example of GGGI being willing to back innovative, riskier solutions that have higher potential for transformative change.

- The Mongolia Program is also attempting to stimulate the market for energy efficiency by exploring and activating various financing modalities, such as energy service companies (ESCOs), energy performance contracts and upfront financing. In addition to developing investment projects, the Program has also supported Energy Regulatory Commission (ERC) to establish the necessary regulatory and institutional tools, enablers and incentives for this. As with any intervention focused on creating 'enabling environments', the odds and timing of success are uncertain but the benefits potentially very large.

- The Program undertook investment-grade energy audits of 15 public/private entities designated as high energy users under Mongolia's Energy Conservation Law. These have helped demonstrate the business case for investing in energy efficiency, but whether these projects will end up being financed depends on the success of the financing interventions described above.[10]

- Energy audits and business cases to invest in energy efficiency retrofitting of residential buildings have also been developed. During IEU's mission in Ulaanbaatar, the Program received news that it had successfully moved to the 2nd step of an application process to secure EUR 18m of investment from the NAMA Facility. If successful, the funds would go towards retrofitting 375 residential buildings in Ulaanbaatar, with potential for future scaling (see Finding 6 for more details). GGGI will receive funding of EUR 380,000 to prepare a detailed proposal in the 2nd step. If successful, implementation of the retrofitting works would be led by GIZ.[11]

[8] Details on the evidence reviewed by IEU has been summarized and published on the Green Growth Evidence Base section of the *Impact* sharepoint site.

[9] Preliminary report by the Green Investment Group, engaged by GoM/GCF to review the MGFC proposal.

[10] That said, one private entity, Chinggis Hotel, has already installed 2 variable frequency drives to air handling units (with financial support from GIZ) and achieved a 20% improvement in energy efficiency.

[11] GGGI is not accredited as a lead implementer under the NAMA Facility and does not view its niche as delivering large-scale construction works.

FINDING 4: In other areas beyond energy efficiency, the Mongolia Program has not yet identified clear impact pathways and remains in exploration mode. Core budget performs an important role in supporting these early stages of programming, which is hard to secure earmarked funds for.

Beyond energy efficiency, the Program has taken initial programming steps in several other areas:

- **Renewable energy/Air quality:** Battery storage, and low carbon space heating in buildings without connections to district heating.
- **Green cities:** Green buildings, revising the Law on Urban Development
- **Climate policy:** 2020 update to Mongolia's NDC and MRV development.

The status of GGGI's programming in these areas is best described as 'exploratory'. The Program is actively searching for new and appropriate niches that GGGI could settle into, as part of efforts to grow and diversify. For that reason, it remains too early to judge the strength of impact pathways in these areas as they have yet to emerge.

Notwithstanding this, the IPR finds that exploratory programming decisions made so far have generally been based on strategic and impact-driven rationale. For example, GGGI's targeting of coal-fired heat only boilers[12] is potentially very impactful, as they are a major contributor to air pollution in Ulaanbaatar. Likewise, moves to take on NDC-related work (2020 update and MRV) was motivated by a desire to build relationships with a strategic partner[13], lift Mongolia's mitigation ambitions, and better position GGGI for international climate finance which is seen as a more accessible source of earmarked funding in the Mongolian context.

There are some instances where programming choices are not as well justified, and stronger scrutiny could have been applied before resources were committed. This applies to work on revising the Law on Urban Development and the green building materials database, neither of which align well to GGGI's strengths/expertise or hold much strategic value or potential for impact. However, such cases are exceptions rather than the rule.

Brief comments are provided below on the status of outcomes being pursued in these exploratory areas (though until a more settled impact pathway emerges, it is difficult to draw meaningful conclusions about the extent of progress being made towards impact).

Renewable energy/Air quality:

- For battery storage, the initial intended outcome was to see a battery storage project financed and implemented, but the Program appears distant from achieving this, since its work is presently limited to improving the enabling conditions for such projects.
- In terms of clean space heating for peri-urban buildings, a business case to replace coal-fed boilers for one school (School #122) with ground source heat pumps has been completed. This successfully resulted in investment being mobilized, with MET allocating state budget to implement the business case as a demonstration project. Construction work to replace the boiler is scheduled to be finished in 2019.
- A waste-to-energy project based on a PPP financing model failed when Invest Mongolia, the key government counterpart, was dissolved following the 2016 elections.

[12] Focused on buildings in ger (peri-urban) areas, which are often not serviced by district heating systems and thus rely on standalone, coal-fired boilers for heating. It is estimated that such boilers, together with household coal stoves, contribute to around 80% of Ulaanbaatar's air pollution.

[13] MET's Environment and Climate Fund, who is also Mongolia's UNFCCC focal point and the GCF NDA.

Green cities:

- The Program assisted the Ministry of Construction and Urban Development (MCUD) to revise the Law on Urban Development, and the formal adoption of these revisions remains pending at the time of the review.
- A public database on green building materials was built but it was not feasible in this review to evaluate the extent to which there has been an increase in the purchase and use of such materials in the construction industry.
- The Mongolia Program completed the technical design for a green kindergarten in the Songino-Khairkhan district of Ulaanbaatar. This was a project that built on previous work initiated by the Green Technology Center Korea (GTCK). The designs were handed over to MET, and ADB financing for a building partly based on GGGI's design was subsequently secured by the Ministry of Education. The kindergarten is understood to be in procurement stages, with a construction company selected and construction to commence in 2020.
- A package of 10 green education buildings to be financed via a PPP model was ultimately unsuccessful in obtaining support from the Ulaanbaatar City Council to go ahead and was dropped thereafter.

The Mongolia experience suggests that developing an impact pathway is by nature an exploratory process of trial and error, which in turn requires time and resources. By its nature, the work is akin to trying to find and cut a path through 'unexplored territory', by deepening GGGI's understanding of focal problems and/or solutions to address them. It is often difficult to attract earmarked resources for work in these early stages where ambiguity and risks can be perceived as high. Core budget has played an important role in 'derisking' potential project ideas until they reach a point where earmarked donors are more comfortable providing support.

Using this approach, it has taken the Mongolia Program around 4 years to build up a deep and coherent impact pathway in the energy efficiency area. Given GGGI's current core budget situation, it is doubtful that the same depth and quality of programming can be replicated in multiple new areas at once - as the program is trying to do. Unless or until additional earmarked funding can be obtained for early, exploratory-type programming, it would be more impactful to pursue a strategy of 'depth over breadth' and limit expansion to a narrower set of areas than is currently the case.

Although the decisions on which areas to prioritize are best left to the Program, IEU offers the observation that areas relating to NDC policy work and cleaner heating of buildings appear to be good options to consider. This is based on various factors including potential for impact, potential complementarities with past/present work, potential for earmarked financing and potential to strengthen GGGI's visibility and brand in Mongolia.

RECOMMENDATION 1: Unless or until additional earmarked funds can be found, the Mongolia Program should pursue a strategy of 'depth over breadth' and reduce the number of new areas that it tries to diversify/expand into at any one time.

2.3 Given the current impact pathways, what are the potential or actual impacts of the Program? Is the Program pursuing ways to scale up impact?

FINDING 5: In the energy efficiency area, the Program is pursuing policy and investment outcomes that, if successfully realized, could potentially result in GHG reductions equivalent in size to 20% of the annual GHG reductions Mongolia hopes to achieve in 2030 under its NDC.

For this IPR, all available estimates of various types of impacts were identified and collated in a single table, as shown in **Figure 2**. As this table shows, the Program has the potential to bring about a variety of impacts. The most notable one relates to the potential GHG mitigation arising directly from 3 specific activities:

- Energy audits of 15 high energy users – 620,231 tCO_2eq/yr
- Energy efficiency retrofits of 375 residential buildings – 96,891 tCO_2eq/yr
- Energy standards and labelling – 758,597 tCO_2eq/yr

If the outcomes for these are successfully realized (ie: financed and implemented), the potential mitigation impact adds up to 1.47m tCO_2eq/yr. This is equal in size to 20% of the total annual GHG reductions that Mongolia hopes to achieve by 2030 under its NDC.[14]

GHG mitigation estimates were also calculated for the MGFC and equated to 3,386,335 tCO_2eq over a 15-year period. The degree of uncertainty around these estimates is much higher, since they depend on the final design and actual lending operations of the MGFC. There is also some overlap between this figure and the potential GHG reductions estimated for the 2 investment projects above. For that reason, the MGFC figure was excluded from the calculations above to avoid the risk of inflated claims about GGGI's impact.

All these estimates should be treated cautiously, as they contain many assumptions and successful achievement of the outcomes is still uncertain. The IPR did not, as part of its current scope, seek to verify these estimates based on commonly accepted industry standards for GHG mitigation or other co-benefits. That said, the IPR finds the numbers to be positive sign that the Mongolia Program has made smart, impactful choices and positioned itself within reach of delivering significant, measurable impact. Given this advanced state of progress and the resources already committed by GGGI to get to this point, it is important that the Program be given time and support to allow these efforts to reach a conclusion, one way or another.

RECOMMENDATION 2: In the event of a need to adjust core funding to country programs in the next few years, core funding levels to the Mongolia Program should be maintained long enough to allow existing activities with potentially high impact (eg: the NAMA Facility proposal and MGFC) to reach their conclusions.

FINDING 6: The Program has been proactive in developing and applying various strategies to try and scale up impact.

The IPR finds that the Mongolia Program thinks proactively beyond the impact of individual projects/policies to how these impacts can be scaled. They have implemented various strategies designed to scale, which are summarized below. Most focus on tackling barriers to private financing for green projects. This is important in the Mongolian context given the public debt/deficit situation since 2012 which led the GoM to obtain a USD 434m IMF bailout package in 2017.[15]

- **PPP:** One of the earlier scaling efforts (2015-16) was to work with Invest Mongolia (and later, ADB) to promote increased use of the PPP model to mobilize more finance for green and social projects. This involved a combination of policy/technical advice and developing pilot green PPP projects (waste to energy, green education buildings) which GGGI hoped would serve as examples that could be replicated. Ultimately this work was unsuccessful, mainly due to the disbanding of Invest Mongolia following elections in 2016.

[14] Mongolia's current NDC commits to a reduction of 7.3m tCO_2eq/yr by 2030 (14% below BAU levels).

[15] Part of a broader $5.5 billion financing package supported also by Japan, Korea, China, the World Bank, and the Asian Development Bank.

- **MGFC:** As noted above, the MGFC aims to enhance supply of cheaper financing with terms better suited to the nature of green projects. Programmatically, there were strong linkages made between the MGFC work and downstream work on developing energy efficiency investment projects. For example, the energy audits for 15 high energy users informed broader market assessments undertaken for the MGFC. Ultimately, it is intended that the MGFC could help unlock financing for not just for these 15 projects, but many others like it. As noted above, a recent external review commissioned by GCF found that the MGFC "*has the potential to become a transformative institution".*[16]

- **ESCO:** Kickstarting an ESCO market has also been a key scaling strategy pursued by the Program, to (among other things) help reduce the upfront costs of investing in energy efficiency. Working closely with ERC, the Program has assisted with: brokering relationships with overseas ESCOs in China and Slovakia to highlight business opportunities in Mongolia; establishing the 'institutional infrastructure' needed for a functioning ESCO market (eg: energy performance contracts, standard offer programs); and promoting reforms that strengthen incentives for energy efficiency investment (eg: tariff reform).

- **Retrofit of residential buildings:** One of the more impressive scaling efforts in the Program relates to the retrofitting of residential buildings.
    - The Mongolia Program began with a small core-funded activity: energy efficiency audits for 3 residential buildings. These buildings were strategically chosen because (a) they represented 3 standardized types of designs that are replicated in the total stock of 1077 pre-cast concrete residential buildings in Ulaanbaatar (b) they would fill a critical data gap in the broader technical literature on the potential energy savings to be gained from retrofitting these types of buildings.
    - The energy audits of these 3 buildings made it possible to develop a larger investment proposal for the NAMA Facility. This proposal ultimately seeks to secure EUR 18m to retrofit not just 3 buildings, but a larger tranche of 375 buildings. As noted earlier, the Program has just successfully moved to the 2nd step of the application process. As a result, GGGI will receive funding of EUR 380,000 to prepare a detailed proposal in the 2nd step. If successful, implementation of the retrofitting works would be led by GIZ.
    - The Program is also proposing to use some of EUR 18m (if secured) to help kickstart the ESCO market in Mongolia (through establishment of an energy efficiency fund, a standard offer program, and on-bill repayments). If successful, the remainder of the entire stock of 1077 residential buildings could subsequently be retrofitted with ESCO financing, without the need for further support from the NAMA Facility.

- **Clean heating of schools:** The Mongolia Program has the ambition of making a big impact on Ulaanbaatar's air pollution, well recognized as amongst the worst in the world. To achieve this, the Program is focusing on finding cleaner alternatives to the +3,200 coal-fired heat only boilers in Ulaanbaatar's peri-urban areas, which (together with over 210,000 household coal stoves) contributes to around 80% of the city's air pollution. To understand the problem and potential solutions better, the Program undertook a pilot project to develop a business case to replace a heat only boiler at a single school (Public school #122). While funding to implement this single business case has been secured (from the MET), the pilot has not yet achieved the bigger picture goal of finding a solution that could be scaled. The Mongolia Program is continuing to refine its search for one, based on lessons from the pilot.

[16] See footnote 9.

2.4 How well is GGGI's new business model supporting delivery of impact in Mongolia? What is working well and what could be improved?

FINDING 7: The Mongolia Program has made strong efforts to transition to GGGI's new business model.

A pipeline of earmarked funding opportunities is being built, with some promising early results. However, core funding still plays an important role, particularly for early exploratory stages of programming, and will remain important to the Program's viability and capacity to deliver impact for some time still.

The Program has grown more impact-driven, nimble and adaptive in the manner that the iGROW reforms intended. This is positioning GGGI well to achieve impacts at scale in the future.

Support from HQ to make the transition smoothly has mostly been good, but there are some key gaps in HQ services and tools that still need attention.

In 2017, GGGI launched a new business model – internally branded as 'iGROW' – which was intended to accelerate the organization's ability to deliver impact at speed and scale and enhance GGGI's competitiveness within the market for ODA funding. iGROW encompasses a large collection of reforms spanning multiple parts of GGGI, but at heart, comes down to 2 key goals.

1. To expand the sources of program funding beyond a few core donors to a more diverse range of earmarked donors, in order to improve financial security and increase the overall resources available to GGGI to carry out its mission.
2. To focus programs more strongly on delivering measurable impacts at scale, while also becoming more nimble, adaptive and innovative in how this is achieved.[17]

Given the relevance of this issue to the IPR, IEU examined the experiences of the Mongolia Program in making the transition with respect to these goals.

Earmarked funding: The IPR finds that the Mongolia Program is actively trying to make this transition. A pipeline of earmarked opportunities had been developed, several proposals were being prepared or have been submitted, and some initial successes achieved:

- GCF Readiness - Funding of $350,000 was secured in 2018 to support the development of the MGFC, and this work concluded at the end of 2018. The Mongolia Program is preparing to submit further readiness proposals to GCF later this year.
- NAMA Facility – Funding of EUR 380,000 has just been secured to fund the preparation of a detailed proposal for retrofitting of 375 residential buildings in Ulaanbaatar.
- ADB – Currently waiting on outcome of a proposal for approximately USD 2m, submitted together with the Mongolia Sustainable Finance Association (junior partner) to set up a fund for green housing construction projects in peri-urban areas of Ulaanbaatar.
- NDC Partnership – Currently preparing a proposal for up to USD 1.8m funding from the Climate Enhancement Action Package to support GoM with NDC revision, implementation and/or financing.

Despite this, maintaining current levels of core funding will remain important for the ability of the Mongolia Program to deliver impacts for some time yet, for a few reasons:

[17] This operating model is inspired by similar "lean innovation" business models popularized by Silicon Valley tech firms and start-ups, which has spread to many other sectors, including the social, environmental and aid sectors.

- Core funding plays an important role in early, exploratory stages of programming in new areas where the impact pathway is still being clarified and defined. The experience of the Program suggests it is not easy to replace this with earmarked funding, as donors are generally prefer to invest in project ideas that are more well defined (ie: focal problems and solutions are well understood and specified) and where GGGI has some track record in-country to show.

- Much of the earmarked funding available in Mongolia is not targeted to energy, the area where GGGI is currently most focused. This mismatch is not surprising, since at the time the existing CPF was developed, availability of earmarked resources was not a key criterion in the selection of GGGI's focus areas. However, the Program team intend to factor this criterion into preparations for their next 5-year CPF, which are about to commence.

Achieving impacts at speed and scale: As evident from earlier sections of this report, the IPR finds that the Mongolia Program is very much operating in the way envisaged by the iGROW reforms. The Program is clearly thinking about scale at the start, not at the end, of projects. Several projects have been designed as pilots, with the deliberate goal of deepening GGGI's understanding of a chosen problem, testing potential solutions, and the scalability of those solutions. The work on retrofitting of residential buildings and heat only boilers are good examples of this. Whether they succeed or fail, these pilots are happening in a relatively lean and fast manner, which is the kind of rapid, innovation-driven behavior that iGROW promotes. Proof of the merits of this model lies in the fact that, within just a few years, the Mongolia Program positioned itself to potentially contribute to 20% of Mongolia's NDC mitigation target (subject to key outcomes being achieved).

HQ support to transition: A key function of HQ teams (especially in OED and SPC) is to enable frontline country programs to deliver impact at speed and at scale. In this regard, the Mongolia Program expressed satisfaction with the support services and tools provided by HQ to make this challenging transition. GGGI Online and CRM were both cited as systems that are both user-friendly and useful for staff in the field. A key reason for this was that both systems eliminated information silos and gave visibility to what was happening in other GGGI countries. Support from the Partnerships team and various technical specialists in IPSD was also noted as good in general.

There do appear to be some important gaps that still need attention in order to fully realize the intended benefits of iGROW reforms in the Mongolia Program.

- The ability to identify and absorb suitable IPSD (and other divisional) experts into project work - particularly earmarked funded projects - remains challenging. Two major reasons for this include the absence of a central register of staff CVs and the usability of *ERP People Planner*.
    - GGGI lacks a central repository of staff CVs that is easy to access/search and kept up to date. Without this, country teams have difficulty simply knowing who the internal experts are and what they can do. The most recent SABA-based effort to build such a repository was viewed as not easy to comply with and duplicates information already available in CVs submitted to GGGI or LinkedIn profiles.
    - In addition to identifying suitable experts, booking them into projects is also difficult. *ERP People Planner* is still a new tool, but its interface is not proving user-friendly and there is reportedly some mismatch with how teams build their project budgets in reality.
- When there is no internal expertise or consulting budget available, staff have needed to undertake technical training to upgrade skills to meet Program needs. Current L&D arrangements in GGGI are not well geared to support this, resulting in staff having to bear these costs personally.

- The absence of a HCA in Mongolia creates a number of legal and operational challenges. These will not be discussed further here, as there is a separate internal process underway to deal specifically with these issues.[18]
- Well planned and predictable budgeting processes that yield early visibility of core budgets is essential for smooth country program operations and good counterpart relationships. In theory, the revised WPB process should have improved things in this regard, by providing programs with a certain yet flexible 2-year (core) budget envelope on which to base planning. However, the turbulent budgeting process, late confirmation of final country budgets for 2019, and inadequate planning for how the WPB would be operationalized in terms of ERP and PCM systems, was unhelpful to country operations. There is ample opportunity to improve this moving forward.
- The significant time involved in preparing earmarked proposals should be recognized through dedicated budget codes in GGGI's systems. This would avoid the perception that country programs are being 'unproductive' and can help inform GGGI's policies/strategies to recover resource mobilization costs.

RECOMMENDATION 3: In the ongoing implementation of iGROW, issues that still need priority attention include: (a) improving the usability and usefulness of *ERP Project Planner;* (b) establishing an functional central repository of staff CVs; and (c) improving the timeliness and predictability of budget preparation processes and its integration with other key business systems and processes.

FINDING 8: Mongolian partners are highly positive about the value of the Mongolia Program, and there is no shortage of demand for GGGI's support. However, they have also noticed growing resource constraints, which has raised questions about GGGI's ability to deliver moving forward.

As part of the IPR, IEU had the opportunity to meet with key in-country partners that the Mongolia Program is working with. Overall, the IPR found that partners held the Mongolia Program in very high regard. Compared to other development partners, GGGI's strengths and value add were seen as:

- Flexibility, nimbleness – other development partners can take 6 months just to respond to requests for assistance whereas GGGI is much faster.
- Risk appetite – GGGI was willing to help develop and support the MGFC, while others declined as it was perceived as too risky.
- Policy and investment expertise – a unique skillset that enabled GGGI to bridge the culture gap between public and private partners and bring them together on multiple activities.
- International presence and networks – GGGI leveraged its international reach and connections to expose Mongolian partners to best practices and new partners in China, Philippines, Slovakia and USA, which they highly valued.
- Collaborative, results-driven approach – compared to others, GGGI staff work as "one team" with partners, are attentive and easy to work with, and overcome challenges to get results where others have previously tried and failed (eg: retrofitting of residential buildings).
- Technical expertise – GGGI provided specialist expertise, either through internal staff or outsourcing, that addressed critical technical bottlenecks holding back GoM policy/investment priorities that they lacked the budget to acquire.

[18] GGGI's Staff Council has undertaken a survey of staff in countries without a HCA (or active HCA) and findings have been presented to MT.

At the same time, it was clear that most partners were aware of growing (core) budget constraints, partly because many requests for support have had to be turned down. They are also noticing that these constraints, in some cases, are eroding GGGI's ability to continue delivering the valued benefits/advantages listed above. This applies not just in Mongolia but other locations also. For example, several partners noted the downsizing of the China Program and commented that this was regrettable as GGGI's presence and work in China had delivered significant benefits to them. Some partners also noted how other development partners pursuing earmarked funding had become increasingly diverted from GoM priorities and cautioned GGGI to manage this risk carefully.

OVERALL CONCLUSION:

The Mongolia Program is on a clear pathway to impact in energy efficiency area, as a result of good programming choices made between 2015-2019. This has put GGGI in a position to potentially contribute to GHG reductions equivalent to 20% of the annual GHG reductions Mongolia hopes to achieve in 2030 under its NDC (pending key outcomes being realized). In addition, there is real potential to scale this impact in future, thanks to the proactive attention the Program has given to the issue of scaling.

The Program has ambitions to develop similar pathways to impact in other areas (renewable energy/air quality and green cities) but these efforts are still at an early, exploratory stage. Given core budget constraints, the Program needs to carefully manage the balance between bringing existing programming efforts to fruition by converting potential impacts into realized impacts and expanding into new areas to position GGGI for the future.

At this point, GGGI can best support the Mongolia Program by (1) maintaining core support long enough for existing potentially high impact activities to reach their conclusions and (2) addressing key identified gaps in HQ services/tools that seem to be hindering in-country operations the most.

3. GGGI MANAGEMENT RESPONSE

Recommendation	GGGI Management Response
1. Unless or until additional earmarked funds can be found, the Mongolia Program should pursue a strategy of 'depth over breadth' and reduce the number of new areas that it tries to diversify/expand into at any one time.	**The recommendation is agreed**. Planned core-based programming for the Mongolia program in 2020 already focuses primarily on both policy and investment in energy efficiency. Expansion in other areas (e.g. climate policy and NDC support, renewable energy, air pollution etc.) is to be enabled via the raising of earmarked funding. The next version of Mongolia's Country Planning Framework, to be elaborated in 2020 shall also clearly outline how future thematic expansion plans connect to impact and resource mobilization.
2. In the event of a need to adjust core funding to country programs in the next few years, core funding levels to the Mongolia Program should be maintained long enough to allow existing activities with potentially high impact (eg: the NAMA Facility proposal and MGFC) to reach their conclusions.	**The recommendation is agreed.** We will make the necessary efforts to mobilize funding (core and earmarked) to the best extent possible to support the program in Mongolia.
3. In the ongoing implementation of iGROW, issues that still need priority attention include: (a) improving the usability and usefulness of ERP Project Planner; (b) establishing an functional central repository of staff CVs; and (c) improving the timeliness and predictability of budget preparation processes and its integration with other key business systems and processes.	**The recommendations are agreed** (a) The recommended actions are well underway. Since January 2019, GGGI Online (GO) was launched and became functional as the main central project design, development, management, and monitoring and reporting platform. As the full cycle of the five PCM completes and organically linked to GO since the revamp of PCM processes, Mongolia teams' feedback along with other country level lessons learnt are being reflected into the system. The central focals on this action will be GGPI front office for GO; Finance and TSU for budget and people planner modules and interfaces. (b) For the central repository of staff CVs, HR requested updated CVs from different units/team earlier. Given the growing needs of utilizing the CVs for funding proposals, a follow-up action will be taken by HR before the end of 2019. The central repository can be placed in the sharepoint people & culture section which is managed by HR. (c) The budget preparation process will learn from the first round of WPB 2019-20 with the aim of being simpler and more efficient .For the predictability of the budget preparation, the planning around future WPB will be done in a way that country teams have a clear understanding on the timelines and expectations as well as the responsibilities in the preparation of the budget.

A/2020/8-C/2020/8
Attachment 2

Global Green Growth Institute

Impact Pathway Review: Viet Nam Program

KEY FINDINGS & RECOMMENDATIONS

Impact & Evaluation Unit, 2020

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Abbreviations

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

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

The first CPF was released in 2016 and covers the period 2016-2020. It identified 3 priority areas for GGGI's country program:

- Green growth mainstreamed into national development planning and financing
- Renewable energy promoted through enabling policies and investment projects
- Green growth mainstreamed into urban development planning and projects

A new CPF is expected to be developed in 2021.

Budget

The table below shows budget allocations to Viet Nam under GGGI Work Program & Budgets (WPB) approved by Council.

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[1]	1,617
Total	**5,587**	**1,019**	**6,606**

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 **Annex 1**.

[1] Earmarked budget for 2020 was drawn from *GGGI Online* and reflects funding from Luxembourg for a green bonds project.

Key GoV partnerships	Ministry of Planning and Investment Ministry of Construction Ministry of Industry and Trade Ministry of Finance SME Development Fund
Growth stage	Under *Strategy 2030*, 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.

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
Viet Nam Program (2020)	5	$1.6m	5	5

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.

3. Impact pathway for the Viet Nam Program

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.[2]

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[3], 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[4] (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.

[2] However, GGGI's systems are in the process of being changed to address this.

[3] 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.

[4] 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.

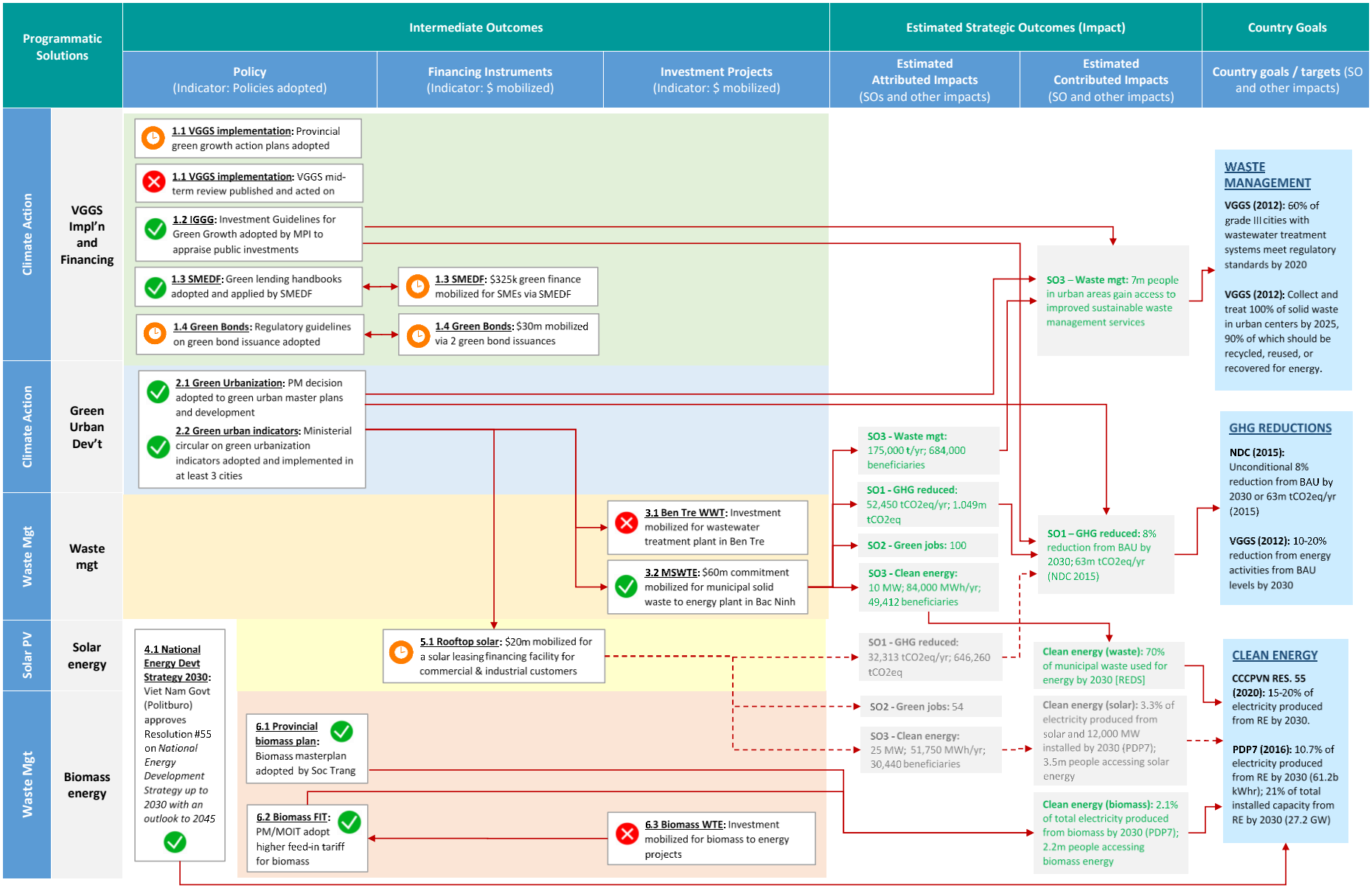
- ***Causal pathways****:* The arrows in the diagram indicate the presence of a causal relationship, where one result causes (or contributes to the causation of) another result. The existence of these causal pathways has been determined through document reviews and interviews carried out by IEU. Causal 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[5], 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.

[5] 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_2eq/yr.[6]	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 kWhr) respectively by 2030.	Revised National Power Development Master Plan for 2011-2020 with a vision to 2030[7] (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

[6] BAU emissions in 2030 are estimated to be 787m tCO_2eq/yr.

[7] 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.[8]

- **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.[9] This leaves a gap of $21 billion that needs to be met through other sources, most likely private finance.[10] 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
VGGS section IV(1a), (3d): 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
VGGS section IV(3a): MPI to undertake a 5-year review of the VGGS	Activities under Outcome 1.1 – Support mid-term review of the VGGS
VGGS Action Plan, Activity 64: Public investments to meet green economy standards	Activities under Outcome 1.2 – Investment Guidelines for Green Growth adopted by MPI to appraise public investments
VGGS section III(14): 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
VGGS section III(14): 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

[8] 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.

[9] *Access to GCF critical to mobilize resources for implementing Viet Nam's national green growth strategy*, Viet Nam Environment Administration Magazine, 2015

[10] 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
VGGS section III(11): 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[11]
- 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

[11] This does not appear in the impact pathway diagram as no clear outcome could be identified for this work.

large infrastructure projects[12] 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.
- 6*3m 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)

[12] 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.
- 6*3m 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_2eq/yr or 1.05m tCO_2eq 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)[13], 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_2eq/yr or 646,000 tCO_2eq over the 20-year life of rooftop solar installations

[13] 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[14], published in February 2020, on the *Viet Nam National Energy Development Strategy to*

[14] 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_2e to 787m tCO_2e between 2010 to 2030.[15] 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.

[15] *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)
ACHIEVED									
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								
TOTAL (2015-2020)	**7**	**60**	**1.049**	**63**	**100**	**0.684**	**7**	**0.049**	**2.2**
IN PROGRESS									
VGGS Impl'n & Financing	2	30.3		as above					
Solar PV		20	0.646		54			0.030	3.5
TOTAL (2015-2020)	**2**	**50.3**	**0.646**		**54**			**0.030**	**3.5**
GGGI TARGETS (2017-2030)	**-**	**16,000**	**1,000**	**1,600**	**2,000,000**	**80**	**400**	**30**	**90**

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.[16] 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"[17], 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.[18] 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

[16] p.ix, GGGI Strategy 2030

[17] p.vii, GGGI Strategy 2030

[18] 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.

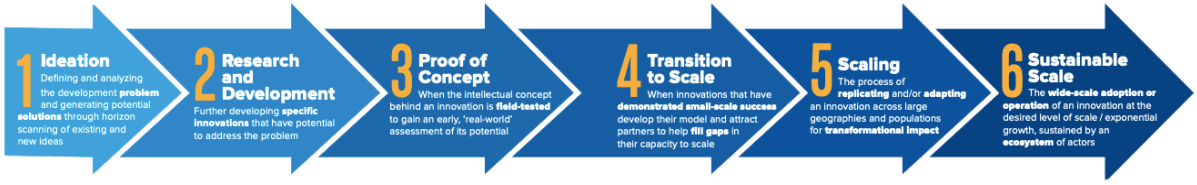
enough to expand and scale on their own without external support. This point regarding GGGI's niche/value add in the market was confirmed in a previous IEU evaluation in 2019.[19]

- **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.[20] 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[21] 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



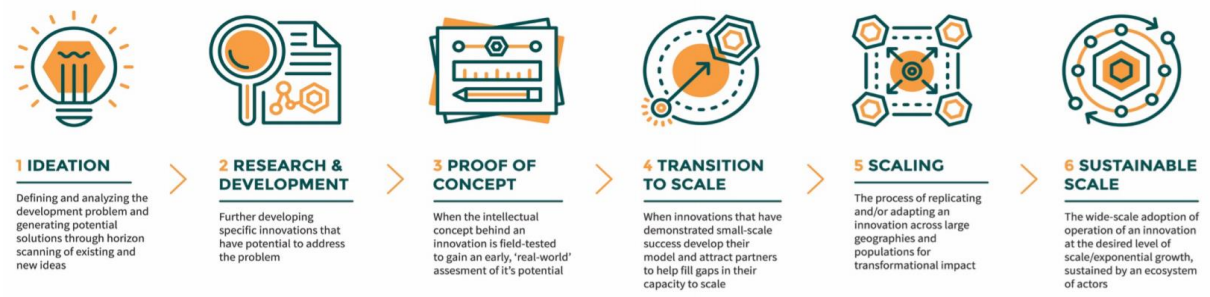
RECOMMENDATION 2: GGGI should consider developing clearer and more explicit guidance on its intended approach to scaling impact. This would help promote more strategic programming choices by GGGI country programs, and ultimately increase the organization's ability to realize the impact targets in *Strategy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

[19] See *Evaluation of GGGI's Green Investment Services*, Impact & Evaluation Unit, 2019

[20] p.13, GGGI Strategy 2030

[21] 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



SCALING STAGE	KEY ACTIONS	RELEVANCE TO IMPACT PATHWAY
1 IDEATION	• Identify country needs/targets to be supported (ie: the problem to be solved) • Select programmatic solution areas to address country needs/targets	GOPs / Programmatic Solutions; GGGI Outcomes: Policy, Financing instruments, Investment projects; GGGI Impacts; Country goals / targets
2 RESEARCH & DEVELOPMENT	• Select and test solutions that have potential to attract investment and achieve impact at scale • Generally done using core funds, or earmarked funds if available	GOPs / Programmatic Solutions; GGGI Outcomes: Policy, Financing instruments, Investment projects; GGGI Impacts; Country goals / targets
3 PROOF OF CONCEPT	• Aim to mobilize private investment (fully or partially) to demonstrate that the solution is scalable • Where solutions look unlikely to succeed, "fail fast"	GOPs / Programmatic Solutions; GGGI Outcomes: Policy, Financing instruments, Investment projects; GGGI Impacts; Country goals / targets
4 TRANSITION TO SCALE	• Seek out and raise earmarked funds to ○ replicate / scale up solutions that were successfully piloted ○ address policy or financing barriers that would help accelerate replication / scale up	
5 SCALING	• Ideally, using earmarked funds: ○ replicate/scale up solutions to mobilize larger investments and achieve impacts at a significant scale ○ address policy and financing barriers	GOPs / Programmatic Solutions; GGGI Outcomes: Policy, Financing instruments, Investment projects; GGGI Impacts; Country goals / targets
6 SUSTAINABLE SCALE	• Monitor for signs that solutions become sufficiently attractive to secure investment at scale without GGGI support - at this point, GGGI should plan an exit	GOPs / Programmatic Solutions; GGGI Outcomes: Policy, Financing instruments, Investment projects; GGGI Impacts; Country goals / targets

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	■	■					**Solution was unsuccessful.** 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	■	■	■				**Solution was successful.** 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	■	■			■		**Solution was unsuccessful.** 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	■	■					**Solution is still being piloted.** 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.[22] 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.[23]

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[24] 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.

[22] 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.

[23] *Vietnam's solar drive*, Global Data Energy, Power-Technology.com, 30 July 2019

[24] 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
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.	Response: Agreed and adopted 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. 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 . 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. Who will implement the response: Vietnam Country Team Response to be implemented by: Completed
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.	Response: Agreed and adopted 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 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. Who will implement the response: GGPI in partnership with Strategy team.

	Response to be implemented by: end of 2021
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.	Response: Agreed and Adopted 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. 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. The upcoming CPF 2021-25 will have a focus on waste solution reflecting the above. Who will implement the response: Asia regional office, Vietnam Office , Regional IPSD officer Response to be implemented by: end of 2021
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.	Response: Agreed and Adopted 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. Who will implement the response: GGPI and Partnership Response to be implemented by: completed

Annex 1 – List of GGGI projects

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

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
SO1 GHG emissions reduced (attributed) – Municipal solid waste to energy plant: 1.049m tCO_2eq	(1) Estimated electricity generation capacity of municipal solid waste to energy plant = 84,000 MWh/yr	GGGI project documents
	(2) Viet Nam grid emission factor = 624.40 tCO_2eq/GWh	*Review of the ADB Results Framework – Appendix A: Indicator Definitions*, ADB, 2012
	(3) Annual estimated emission avoided = (1) x (2)/1000 = 52,450 tCO_2eq/yr	
	(4) Estimated operating life of plant = 20 years	GGGI project documents
	(5) Cumulative estimated emission reductions over life of plant = (3) x (4) = 1,049,000 tCO_2eq	
SO1 GHG emissions reduced (attributed) – Solar Leasing Finance Facility: 0.646m tCO_2eq	(1) Estimated investment = USD 20m	GGGI project documents
	(2) Investment rate = USD 0.8m/MW	GGGI project documents
	(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	GGGI project documents
	(5) Viet Nam grid emission factor = 624.40 tCO_2eq/GWh	*Review of the ADB Results Framework – Appendix A: Indicator Definitions*, ADB, 2012
	(6) Annual GHG emission reductions = (4) x (5) / 1000 = 32,313 tCO_2e/yr	
	(7) Average life of rooftop solar installation = 20 years	GGGI project documents

Estimated impact	Calculation steps	Data source
	(8) Cumulative GHG emission reductions = (6) x (7) = 646,260 tCO_2e/yr	
SO1 GHG emissions reduced (contributed): 63m tCO_2eq/yr	(1) This figure represents the total annual emission reductions in 2030 (from BAU levels) that Viet Nam aims to reach under its NDC. (2) GGGI is contributing to the achievement of this entire amount, due mainly to activities such as the *Investment Green Growth Guidelines* (Outcome 1.2) and the *PM decision on green urban master plans and development* (Outcome 2.1), which cover all sectors.	*Implementation of NDCs – Viet Nam Country Report*, German Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety, 2017
SO2 Green jobs created (attributed) – Municipal solid waste to energy plant: 100 jobs	(1) Estimates obtained from feasibility study produced by project developer	GGGI project documents
SO2 Green jobs created (attributed) – Solar PV: 54 jobs	(1) GGGI Viet Nam estimates	GGGI project documents
SO3 Access to sustainable waste management services (attributed) – Municipal solid waste to energy plant: 0.684m people	(1) Waste generation in urban areas = 0.7 kg/person/day (2) Waste generation in urban areas per annum = (1) x 365 = 255.5 kg/person/yr (3) Plant treatment capacity = 500,000 kg/day x 350 days of operation/yr = 175,000,000 kg/yr (4) Number of people benefiting from the plant's waste treatment services = (3) / (2) = 684,932 persons	*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 GGGI project documents
SO3 Access to sustainable waste management services (contributed): 7m people	(1) Projected urban population of Viet Nam by 2030 = 47.25m (2) Targeted rate of waste management coverage in urban areas = 100%	*UN World Urbanization Prospects 2018* website, UN Department of Economic & Social Affairs *Prime Minister Decision No. 1393/QD-TTg, Approval of the National Green Growth Strategy*, Socialist Republic of Viet Nam, 2012

Estimated impact	Calculation steps	Data source
	(3) Baseline rate of waste management coverage = 85% (4) Gap in rate of waste management coverage = (2) – (3) = 15% (5) Number of people gaining access to waste management services = (1) x (4) = 7,087,5000 people	*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
SO3 Access to clean energy services (attributed) – Municipal solid waste to energy plant: 0.049 m people	(1) Annual electricity generation of plant = 84,000,000 kWh/yr (2) Average annual electricity consumption per capita = 1,700 kWh/yr/person (3) Number of people gaining access to electricity from the plant = (1) / (2) = 49,411 people	GGGI project documents *"Tiêu thụ điện mới bằng một nửa bình quân thế giới Việt Nam đã phải nhập khẩu năng lượng"*, Viet Nam Biz, 2017
SO3 Access to clean energy services (attributed) – Solar Leasing Finance Facility: 0.03 m people	(1) Annual electricity generation of plant = 51,750,000 kWh/yr (2) Average annual electricity consumption per capita = 1,700 kWh/yr/person (3) Number of people gaining access to electricity from the plant = (1) / (2) = 30,441 people	GGGI project documents *"Tiêu thụ điện mới bằng một nửa bình quân thế giới Việt Nam đã phải nhập khẩu năng lượng"*, Viet Nam Biz, 2017
SO3 Access to clean energy services (contributed) – Biomass energy: 2.2m people	(1) Baseline electricity generation from biomass 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 biomass by 2030 = 2.1% (4) Total electricity generation from biomass in 2030 = (2) x (3) = 12,012,000,000 kWh/yr (5) Projected annual electricity consumption per capita in Viet Nam in 2030 = 5,400 kWh/person/yr	International Energy Agency website – Viet Nam country profile *Prime Minster 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 *Prime Minster 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 *Vietnam's crisis of success in electricity*, Dapice, D., John F. Kennedy School of Government, Harvard University, 2018

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	
SO3 Access to clean energy services (contributed) – Solar leasing finance facility: 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	International Energy Agency website – Viet Nam country profile *Prime Minster 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 *Prime Minster 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 *Vietnam's crisis of success in electricity,* Dapice, D., John F. Kennedy School of Government, Harvard University, 2018

Annex 3 – References

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