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**Discussion Paper on Nationally Determined Contributions (NDCs) and  
National Financing Vehicles (NFVs)**

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## 1. Nationally Determined Contributions and National Financial Vehicles: Bridging the Finance Gap

### 1.1 Background

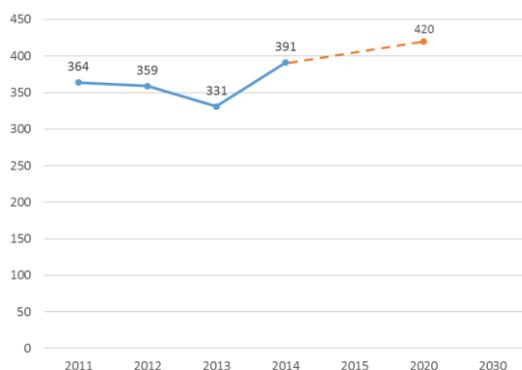
1. This paper summarizes GGGI's work on Nationally Determined Contributions (NDCs) and on National Financial Vehicles (NFVs) to help achieve the objectives of GGGI's Strategic Plan 2015-2020 [C/6/DC/4], specifically mobilizing finance and building capacity. The work on NDCs and NFVs follows the approval of two envelopes of finance approved at the November 2015 Sessions of the Assembly and Council: USD 1 mil for NFVs and USD 1 mil for a review of (I)NDCs to lead to a pipeline of green bankable projects in order to make the climate plans financially viable [C/8/DC/1/Annex 1]. GGGI was allowed to spend 40% of each envelope for the scoping phase of the two areas, based on which the remainder of the budget envelope could be utilized upon clearance by the Director General.
2. Comprehensive proposals were developed in March/April 2016 on NDCs and NFVs. The process to select countries and on specific opportunities to advance the work was presented to GGGI Management Team (MT) for review, input, and approval. Based on this reporting, the work on NDCs and NFVs was approved by the MT and continued in the various countries.
3. Projects were selected following a systematic review of all NDCs. GGGI's approach has been to engage with country teams and relevant counterparts in the countries ensuring that the outcomes are aligned to country demand and content of the GGGI country program.
4. The demand from countries for support on developing green bankable projects from NDCs, and the designing of NFVs has been overwhelming, with GGGI needing to prioritize which countries to assist first.

### 1.2 Bridging the finance gap

5. GGGI's Strategic Plan 2015-2020 recognizes that even without taking into account the need for green investment, the global economy requires by 2030 about USD 89 tril in infrastructure across cities, land-use, and energy systems. There are several studies that estimate the financing needs of energy systems. These vary on the level of ambition, but all estimates are in the hundreds of billions. Yet, availability of finance is not the bottleneck. A study done by the Climate Policy Initiative in 2014 suggests that of the USD 71 tril that is estimated to be managed by institutional investors in OECD countries, at least USD 391 bil can be invested in renewable energy projects, driven by private entities that are largely project developers. Institutional investors are visibly absent, accounted for USD 243 bil, and public entities—dominated by national development finance institutions, followed by the multilaterals— for USD 148 bil.
6. In a best case scenario with low levels of policy or investment barriers, USD 689 bil would be available in renewable energy alone, of which about USD 257 bil can be made directly available to projects. This means is that there is a gap between the risk-reward profiles that investors seek and the risk-reward profiles of the projects on offer. Also needed are appropriately structured financial vehicles that can blend public and private sources of finance, and international and domestic capital. This paper assumes that finance for green

bankable projects encompasses a broader remit than only climate finance (mitigation and adaptation activities) such as industrial pollution control, and water sanitation.

**Figure 1.1: Climate finance and green capital is increasingly being made available**



Global Landscape for Climate Finance in 2014. Climate Policy Initiative. And, the Challenge of Institutional Investment in Renewable Energy, March 2013

7. Bridging this “financial gap” between financiers and projects requires the following:
  - a. **Better designed policies.** Policies must provide the appropriate incentives to invest, promote scale and a consequent reduction in unit price. Policies must also be of appropriate duration.
  - b. **Better projects.** Projects must reflect the risk-reward expectations of investors, which means they need to be customized and structured accordingly. To draw in larger investment houses or achieve scale, more pooled investment vehicles need to be created.
  - c. **Stronger institutions.** Institutions charged with climate change finance are able to handle the associated capital flows.
8. Domestic legislation is a critical determinant of the level of capital flows to a country – whether for urban infrastructure, clean energy, or any other type of investment. Domestic policies are the next most important determinant of whether and under what conditions investors will deploy their capital in areas around green growth. Countries that have attracted the most investment in green technologies are those that have had clear policies, provided long-term investment certainty and have robust institutions with transparent and efficient decision-making capacity. Conversely, countries that have struggled to attract significant investment (in areas such as energy) are those that lack institutional capacity or lack clear policies.
9. GGGI is working on precisely the above three areas - policies, projects and institutions - to address the financing gap. Its Policy Solutions Department (formerly Knowledge Services) provides the policy and sectoral advice to governments while its Green Investment Services Department works with entities to make their projects and programs bankable. GGGI works to develop projects, risk reducing financial instruments and national financing vehicles.
10. In its work on developing bankable projects and designing national finance vehicles, direct engagement with private sector entities is a given and necessary precondition to understanding the needs of private capital such that GGGI as a public agency can add the

best value and reduce risk where it is most needed. Each project and each NfV is assessed for who the likely financier or technology provider or developer could be; only then can the projects be designed accordingly.

## 2. Implementing Nationally Determined Contributions (NDCs)

### 2.1 Background to NDCs

11. There is a growing concern that the international community is not acting quickly, effectively and efficiently enough to limit climate change to “well below 2°C” and pursue “efforts to limit the temperature increase to 1.5°C” (UNFCCC, 2015). This concern stems partly from the fact that there is a significant finance gap (refer to section 1.2) to implement projects, including mitigation and adaptation projects needed to curtail climate change predications. In 2010, at the 16th session of the Conference of the Parties (COP16) in Cancun the developed country Parties committed to a goal of “mobilizing jointly USD 100 billion per year by 2020 to address the needs of developing countries...from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources” (UNFCCC, 2010). According to OECD-CPI (2015), climate finance mobilized from developed countries to developing countries averaged only USD 57 billion over the 2013-14 period.
12. What is interesting to note from the OECD analysis (OECD-CPI, 2015) is the relative lack of mobilized private climate finance. There is a strong consensus that public finance alone cannot meet the enormous climate finance challenge the world faces today, and private finance must be made available to reach the scale necessary to meet this challenge. A recent UN report clearly indicates that while “the public sector has a vital role to play, the private sector will provide the bulk of the financing and insurance driving the transition” (UN, 2015). Yet, private climate finance accounted for only a quarter of the total climate finance mobilized in 2013 and 2014.
13. While there is a room for improvement, particularly on mobilizing the required amounts of private capital, the need for climate action is increasingly being understood by the public and government stakeholders. Parties agreed at COP19 in Warsaw to “initiate or intensify preparation of their Intended nationally determined contributions”, also known as NDCs (UNFCCC, 2013). NDCs refer to post-2020 climate actions – mitigation and adaptation - that countries across the world intend to take under the Paris Agreement, which was agreed to at COP21 in Paris. By COP21, 160 NDCs had been submitted, reflecting 187 countries and, at the time, accounting for 95% of the global greenhouse gas (GHG) emission. The NDC process is a country-driven process, during which countries determine their own actions and ‘contributions’ within the framework of their national priorities, circumstances and capabilities. As such, NDCs are national expressions of the countries’ strong commitment to climate action, and although expressed in climate change terms, are designed in light of countries’ growth considerations and aspirations.
14. The key question, then, is how countries can implement their NDCs in the face of the climate finance gap. With its vision of a “resilient world of strong, inclusive, and sustainable growth”, and its objective of helping its “Partner Countries move towards a model of green growth”, GGGI is well-positioned to support NDC implementation. The Institute is working with its Partner countries to implement their NDCs through

rigorous project pipeline identification eventually leading to the development of green bankable projects. GGGI helps respective governments by (a) building countries' mitigation and adaptation project pipelines to be delivered under NDCs, (b) identifying and removing barriers to green project development; (c) working with the countries to structure projects to bankability, i.e. align with the risk-reward requirements of investors; (d) using appropriate financial instruments and vehicles to increase access to- and scale up green finance, and (e) building the capacity of institutions.

15. This section presents the work that GGGI has conducted in 2016 on Partner country NDC analysis, project identification and design. It outlines GGGI's project development steps to identify, scope and develop NDC project opportunities. It also presents a list of six (6) prioritized projects and relevant sector analyses to demonstrate the catalytic impact that GGGI aims to realize.

## 2.2 GGGI's NDC program

16. As mentioned earlier in the document, a budget of USD 1 million was released to GGGI at the November 2015 Sessions of the Assembly and Council, to scope out an initial pipeline of green bankable projects. Accordingly, a complete review of 20 INDCs was undertaken, with specific project assessments for 8 countries. Assessments have focused on those countries where GGGI has already conducted project scoping missions and has a good understanding directly from stakeholders of potential opportunities. 20 Partner countries were included in the NDC initial assessment, and projects from 8 Partner countries were taken forward for development to bankability. The selection of 8 Partner countries for detailed assessments was largely based on direct consultations with stakeholders such as the Government and regulatory entities, private companies involved in the identified sector, financial institutions and investors, local project developers, and other entities such as bilateral agencies or donors. This gave teams first-hand knowledge of the policy and investment conditions that will determine whether or not projects can get financed, i.e. whether policy conditions could be overcome or not, and whether capital would flow. Further selection criteria for the 8 Partner countries is provided in section 2.2.1.

### 2.2.1 Approach and project development process

17. Achieving the mitigation and adaptation targets and objectives detailed in NDCs require a holistic approach. While GGGI has been active and successful in supporting its Partner countries develop green growth policies and create an enabling environment for green growth, project development is an essential next step in translating these activities into concrete green bankable projects. With this approach to green growth, GGGI is well-positioned to support its Partner countries implement their NDCs.
18. In addition, GGGI's presence in each of its Partner countries, some of whom are embedded in relevant ministries encourages project development to be country-owned and consistent with national climate change ambitions and priorities, which in turn is consistent with the concept of NDCs.
19. While evaluating NDC project opportunities, GGGI has taken into consideration other ongoing initiatives related to NDCs to prevent duplication of efforts. Both adaptation and mitigation opportunities were considered during the evaluation.

20. GGGI follows a standardized 4-stage process (Figure 2.1) to develop green bankable projects. This internal process was applied to the development of bankable projects within the context of NDCs as well. The four stages are described below. This stage-wise approach has been adopted to monitor project development, manage costs and reporting, manage risk and mitigate and in general, enable better planning.

**Figure 2.1: GGGI Internal Project Development Steps**



21. **The idea stage** refers to a project idea development through (1) a thorough review of all relevant NDCs, (2) NDC selection for project concept development, (3) sector assessment (energy, green cities, water, and land-use), (4) project idea definition, and (5) preliminary discussions with potential GGGI counterparts.
22. **The concept stage** involves (1) directed discussions with relevant Government counterparts, developers, and investors, (2) development of preliminary financial model, (3) identification of potential financier, (4) conducting pre-feasibility and feasibility studies (if determined to be ready), and (5) development of project documentation
23. **The design stage** involves (1) detailed financial modeling, (2) structuring, (3) conducting feasibility studies, and (4) full proposal development.
24. **The finance stage** involves development and finalization of term sheets and financing agreements.

### 2.3 Project identification

25. The NDC project identification for GGGI Partner countries was an extensive exercise. It involved a review on country INDCs, and of other relevant documents such as national green growth strategies and energy plans as referred to in the NDCs, consultations with stakeholders such as government institutions (ministries of energy, environment, finance, planning authorities etc.), public and private financial institutions, relevant non-governmental organizations and academic establishments, project developers and relevant association (e.g. plantation associations). The process is described below.

#### Step 1. NDC Review

26. During the first half of 2016, 20 Partner countries' NDCs were reviewed to develop an indicative project pipeline. The process involved the review of NDC documents submitted to the UNFCCC, and of climate change and related Government policies; 'limited' consultations with relevant stakeholder with a focus on areas and nature of support required for NDC implementation; and, review of country-specific climate change-related investments and projects currently in the pipeline. This expansive review process allowed for a more nuanced and contextual assessment of NDCs for project identification.

27. With respect to the review criteria, GGGI placed a particular emphasis on the following:
- sector conditions: factors affecting the growth of the sector, and relevant policy conditions;
  - stakeholder environment: stakeholders and institutions required to identify, develop and implement green bankable projects stemming from the NDCs, including other institutions already involved in relevant work;
  - investment and market conditions: conduciveness of enabling environments to develop green bankable projects; and
  - potential for the application or change/revision of policy instruments to effect change should it be required.
28. Using these criteria helped identify areas that would create the highest impact when identifying green bankable projects, and catalyzing investment.
29. The NDC review showed a high level of variation in the specificity of information provided by countries in their NDCs. Only 8 of the countries that were reviewed clearly provided quantified conditional and unconditional emission reduction targets. The proposed actions also varied. For example, while Senegal provides detailed sector level conditional and unconditional actions, the expected emission reductions from each set of actions, and the associated domestic and foreign investment required, India only provides an aggregate economy-wide target, and Nepal provides no quantified targets at all. In addition, NDC documents vary significantly in terms of the quality of information regarding national plans and policies. For example, Fiji maps its proposed actions to its domestic policy framework as well as international programs, while India's country team provided detailed information on the alignment between project pipelines and the country's NDCs.

## Step 2. Partner country NDC prioritization

30. Once the NDCs were reviewed, they were prioritized for further assessment. The criteria used for prioritization are as follows:
- GGGI membership status and country classification (i.e. Least Developed Country, Lower Middle Income Country, and Upper Middle Income Country);
  - Status of Country Planning Framework;
  - Results of GIS project scoping missions;
  - Relative maturity of the NDC, maturity of the sectors, and country's responsiveness towards their priority;
  - Status of government request to GGGI for support on NDC implementation; and
  - Results of the GGGI NDC reviews: including content such as specificity of actions and financial information;
  - Availability of financing.
31. Where appropriate, the country planning frameworks were also referenced to complement this process. In addition, NDCs were assessed against relevant Work Program and Budget (WPB) to check whether GGGI's interventions in the context of the NDCs will be coherent and consistent with the WPB already in place.
32. As a result, the NDCs of the following 8 countries were selected: Fiji, India, Indonesia, Rwanda, Senegal, Thailand, Vanuatu, and Vietnam. A summary of NDC review findings for all 20 Partner countries can be found in **Table 5.1** (in Section 5, Annex A). The selection

process considered three broad categories, (country evaluations of which can be seen in the table 5.1): GGGI country status, NDC review process and NDC content. The GGGI country status takes into account whether the country is a GGGI Partner country or only has in-country operations, its classification (i.e. Least Developed, Lower Middle Income, and Upper Middle Income countries), existing country planning frameworks, in-country scoping missions by GGGI, and specific country requests for NDC implementation support. The NDC review process weighs results of the NDC country surveys carried out by GGGI, and the detailed NDC reviews. The NDC content evaluates the specificity (with respect to quantified sector targets and planned measures) and financial details (aggregate investment numbers, sectors investment costs, required international support) provided by the countries in their NDC documents.

**Step 3. Project identification and prioritization**

- 33. Once the NDCs were prioritized, the next step was to evaluate the sectors and investment programs in each of the 8 countries. This process was based on identified Government priorities through scoping missions, available data, and consultations with stakeholders, and led to a list of potential projects in the prioritized countries and sectors. This list was then assessed in the context of sector, investment and market conditions as well as market potential to determine which projects would have the biggest catalytic impact.
- 34. The result of the process was an identification of 6 projects in 5 countries for development starting in 2016 listed in table 2.1 below. The 6 projects were selected due to their level of maturity, with respect to the stage of scoping and being able to progress each to the idea stage), government priorities, and request from stakeholders.

**Table 2.1: List of Prioritized INDC Projects for Implementation by GGGI**

Project Name	Country
Catalyzing investment for an industrial energy efficiency program of approximately 500MW.	India
Energy Access: Design of an energy access debt fund of \$100 mil	India
Palm oil mill effluent waste-to-energy program	Indonesia
On-grid micro hydro facility development program	Rwanda
Waste-to-energy program for the City of Dakar	Senegal
Energy efficiency investment program as implementation of the Thailand GHG roadmap	Thailand

2.4 Country evaluation and project pipeline

- 35. Provided below is an overview of the policy and investment environment for each selected country, and the selected project.

2.4.1 India

**1. Policy and investment environment**

		
<b>Renewable energy</b>	<b>Energy efficiency</b>	<b>Transport</b>
<ul style="list-style-type: none"> <li>Government has secured financing and capacity creation commitments from the private sector to meet its ambitious targets</li> <li>Low bankability of PPAs is an obstacle to project finance</li> <li>Low grid capacity can be a challenge for power evacuation, especially for intermittent sources of power</li> <li>Low access to international finance and high cost of domestic finance</li> </ul>	<ul style="list-style-type: none"> <li>Energy efficiency investments in the industrial sector have primarily been made under the Perform, Achieve and Trade scheme.</li> <li>Incentivizing energy efficiency and clean production processes has been challenging due to the high cost of finance – companies typically prefer to channelize high cost finance towards production activities rather than efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>Transport sector unable to cater to the growing demand.</li> <li>Transport policies and legislations vary across states, and are interlinked with other domains such as land-use, energy, environment, technologies and finance.</li> <li>Projects are often undertaken on a PPP basis due to high govt risk</li> <li>Air quality has become a major cause for concern, with exceedingly high particulate levels in most cities.</li> </ul>

**2. Selected projects**

<b>Project 1</b>	Regulatory framework to catalyze investment for an industrial energy efficiency program approximately 500MW of energy.	
Link to NDC	Energy efficiency	
Investment	USD 100 million	
Project description and impact	Karnataka is among the top producing regions of cement (~25 Mt) and iron and steel (~12 Mt) in India. While waste heat recovery (WHR) is an important energy efficiency measure with a significant potential, the market for WHR is at an incipient stage today, with around 250-300MW installed across the country so far. Out of this, only 10MW is presently installed in Karnataka. GGGI estimates that there is a potential of deploying over 500 MW in WHR in the state by 2030. While proven mature WHR technology is readily available, there are several barriers for WHR uptake in the state. These barriers include (1) high upfront investment cost, (2) lack of access to debt finance/equity, and (3) inadequate policy environment (preferential tariff /power purchase agreement). GGGI aims to tackle these barriers to encourage WHR uptake to unlock the state’s 500 MW potential.	

<b>Project 2</b>	<b>Energy Access: Design of energy access debt fund development</b>	
Link to NDC	Renewable energy	
Investment	USD 100 million	
Project description and impact	The Indian government has set an ambitious target of installing 175 GW of renewable-based power capacity by 2022, needing investments to the tune of USD 200 bil over the next few years. While much attention is focused on large-scale solar PV projects, the development of off-grid energy (OGE) sector can contribute to achieve the national target. However, there are several barriers for the OGE sector to grow, most importantly, high risk perception of OGE companies and lack of access to long term competitive debt finance. The debt fund will be designed to unlock debt financing to energy access and decentralized power generation companies in India.	

2.4.2 Indonesia

1. Policy and investment environment

		
<p><b>Solar energy</b></p>	<p><b>POME to energy</b></p>	<p><b>Wind energy</b></p>
<ul style="list-style-type: none"> <li>• The prevailing fuel on the grid is diesel at a price that is almost 30% higher than most renewables.</li> <li>• PLN is the only state utility, and energy deregulation is yet to unfold in a systematic way</li> <li>• Independent power producers (IPPs) are few, although permitted by the Government</li> <li>• Foreign investment in renewable energy is increasing, but most investors are reluctant to invest in the early stages of development.</li> </ul>	<ul style="list-style-type: none"> <li>• Indonesia is the world's largest producer of palm oil</li> <li>• Palm oil production contributes to deforestation and GHG emissions</li> <li>• Indonesia has an aggressive renewable energy target to scale up by 6 times in the next ten years to 46GW in 2025.</li> <li>• POME is the most viable source of renewable energy for Indonesia</li> </ul>	<ul style="list-style-type: none"> <li>• GoI target is to increase electrification from 86% 97% by 2019 – many islands have no electricity</li> <li>• Indonesia's windiest areas are along the less populous eastern islands, which lack transmission infrastructure capable of sustaining wind power</li> <li>• Traditional power developers are few. GoI is in the process of establishing a new vehicle to fund renewables, and the Finance ministry has recently set up a specialized bank (SMI) to promote renewables.</li> </ul>

2. Selected project

<p><b>Project 1</b></p>	<p><b>Palm oil mill effluent (POME) waste-to-energy program</b></p>	
<p>Link to NDC</p>	<p>Renewable energy</p>	
<p>Investment</p>	<p>USD 11 million</p>	
<p>Project description and impact</p>	<p>Diesel is the dominant source (73%) of electricity generation in the province of East Kalimantan (EK). Indonesia's NDCs set out an ambitious unconditional target of achieving a 29% reduction in emissions by 2030 compared to the business as usual scenario, while it targets an additional emissions reduction of 12% conditional on international support. To meet these targets, the Government of Indonesia aims to achieve at least 23% energy generation from renewable sources by 2025, nearly six times the 2014 baseline of 4%. The EK provincial government plans to triple the land used for palm oil plantations to 3 million hectares by 2020. This offers an opportunity for the EK government and private sector to supply clean energy to the electricity grid through using POME as the source biomass for conversion to electricity. A recent biomass potential assessment identified POME as the most viable source of renewable energy currently available with a potential between 40 and 100 MW. GGGI will arrange one of the first POME projects in the region to provide a demonstration project and catalyze further investment in to the sector.</p>	

2.4.3 Rwanda

1. Policy and investment environment

		
Solar PV	Hydro power	On-grid power
<ul style="list-style-type: none"> <li>• Low financial viability in off-grid/ mini-grid sector since consumers are low-income households and Rwanda lacks a strong regulatory and legal framework.</li> <li>• The institutional structure does not clearly specify which geographic area or socio economic strata of the population will be targeted, leading to a patchwork of different off-grid support systems</li> <li>• Standalone solar PV market has been the target of several donor programs</li> </ul>	<ul style="list-style-type: none"> <li>• Mini-grids based on micro hydro face a number of specific legal and regulatory barriers, leading to a lack of clarity about commercial details.</li> <li>• Low access to climate finance and capacity constraints for implementation</li> <li>• Over 300 potential sites have been identified for development as small/ micro and pico hydro power production sites in Rwanda. However, very few have been developed so far.</li> </ul>	<ul style="list-style-type: none"> <li>• The government’s target is for 48% of households to be connected to the grid by 2018. This will require further scaling up of existing grid-extension programs.</li> </ul>

2. Selected project

<b>Project 1</b>	<b>On-grid micro hydro facility development program</b>	
Link to NDC	Renewable energy	
Investment	USD 50 million	
Project description and impact	<p>The Government of Rwanda has set a target of 70% electrification by 2018, with 48% of it coming from hydro. One of the ways this target can be reached is through the development of a large number of micro hydro facility in areas identified for micro hydro. A total of 333 sites in Rwanda have been identified for possible developments of hydro facility of less than 10 MW in capacity. The Government of Rwanda has completed pre-feasibility studies for 38 projects totaling 57 MW in capacity. In line with work GGGI has already completed around secondary green cities, a potential market for hydro power to be generated around these locations will be analyzed and a potential risk-reducing instrument will be examined in order to incentivize the private sector to develop potential sites.</p>	

2.4.4 Senegal

1. Policy and investment environment

			
<b>Waste to energy</b>	<b>Solar energy</b>	<b>Forests</b>	<b>Energy efficiency</b>
<ul style="list-style-type: none"> <li>National Program of Biogas for Domestic Use (PNBS) to promote the use of biogas for productive in rural areas</li> <li>Unite de Coordination de Gestion des Dechets (UCG), national entity to manage household and industrial waste</li> <li>Potential of 3m tons of agricultural biomass/yr, enough to implement at least a 10MW power plant</li> </ul>	<ul style="list-style-type: none"> <li>Solar energy has vast potential to meet Senegal's energy deficit</li> <li>Senegal has 2.7 million hectares of irrigable land, of which 140,000 ha are irrigated due to lack of water supply</li> <li>The National Agency for Agricultural Development and Insertion (ANIDA) was created specifically to establish family farms and particularly to provide them with well, solar power pumps and drip irrigation technologies</li> </ul>		<ul style="list-style-type: none"> <li>Reducing the energy demand and increasing energy efficiency is one of Senegal's national priorities under the National Energy Sector Development Strategy</li> <li>Senegal's Green City Initiative will be supported by funding from UNEP. Green buildings are one of the focus areas.</li> </ul>

2. Selected project

<b>Project 1</b>	<b>Waste-to-energy program for the city of Dakar</b>	
Link to NDC	Renewable energy	
Investment	USD 1.5 million	
Project description and impact	<p>Senegal's NDCs set out an unconditional target of achieving a 5% reduction in emissions by 2030 compared to the business as usual (BAU) scenario. It targets an additional emissions reduction of 21% conditional on international support. The NDCs key focus is on renewable energy, with waste to energy a prioritized sector for the government. GGGI is using a bottom up approach to scaling up and catalyzing investment to the sector. Under the direct mandate of the Senegalese government, GGGI is taking to bankability a waste to energy project that uses animal waste from a slaughterhouse managed by the Senegal Abattoirs Management Company (SoGas). This captive energy biogas demonstration project will be used a showcase (technical and financial) to unlock further private and public sector investment for slaughterhouse waste to energy projects aiming to convert the market potential of approximately 4-5MW in Senegal. Further to this project, other waste sectors in Senegal, such as municipal waste, local market waste, and biomass waste from agricultural activities will be targeted.</p>	

2.4.5 Thailand

1. Policy and investment environment

	
<p><b>Renewable energy</b></p>	<p><b>Energy efficiency</b></p>
<ul style="list-style-type: none"> <li>• Maintaining energy security and balancing rapid economic growth to improve the quality of life for its population with sustainability is a challenge.</li> <li>• High costs and capacity constraints have limited sector development. Several proposed measures and actions are subject to high investment and operation costs, particularly the cost of technologies and infrastructure.</li> </ul>	<ul style="list-style-type: none"> <li>• Energy efficiency program development is a priority area for Thailand.</li> <li>• The government developed the new national long-term Energy Efficiency Development Plan (EEDP) for the period 2011-2030 to set energy conservation targets at the national and sectoral level, and laying down strategies and guidelines, establishing the planning framework and allocating tasks to related government agencies.</li> <li>• Lack of political stability due to military rule has deterred investment</li> </ul>

2. Selected project

<p><b>Project 1</b></p>	<p>Energy efficiency investment program as implementation of the Thailand GHG roadmap.</p>	
<p>Link to NDC</p>	<p>Energy efficiency</p>	
<p>Investment</p>	<p>USD 30 million</p>	
<p>Project description and impact</p>	<p>Since August 2014, GGGI has assisted the Thai Government to develop a practical and implementable GHG reduction roadmap for the Thai industry. As the next step, we move along the industry value chain to design an energy efficiency financial mechanism, starting from auto-parts sector. The program, targeting at small and medium sized enterprise auto-parts business owners, aims to contribute the country’s NDC strategy and create new jobs in the entire automotive value chain. GGGI aims to develop an energy efficiency realization scheme through the introduction of a risk sharing facility and guarantee fund/insurance facility with concessional finance, as well as an innovative payment mechanism of “on-the-bill” financing model with PEA, a state own utility company.</p>	

2.5 Next steps in GGGI’s NDC program

36. GGGI assessed 20 Partner countries’ NDC’s to assist in the development of green bankable projects. From the selection process, only 6 projects could be taken forward in 2016. From only the 8 shortlisted Partner countries, a pipeline of least 20 (possibly viable) project idea opportunities was developed.

37. Each of the 6 selected projects has an implementation timeline that stretches into 2017, meaning that project development takes time. Progress from one stage to another is not certain. Because GGGI works on sectors that are sub-commercial and focuses on catalytic value and risk reduction, policy conditions that affect the sector – and hence the sector – sometimes need tweaking. This takes time.

38. Government stakeholders have requested further support to help realize further green bankable projects that would enable them to implement their NDCs. Many institutions lack the required capacity and expertise to identify and develop projects for NDC implementation. Requests have been made for GGGI to provide an implementation solution to build, for example, investment and policy support solutions, financial structuring for projects, crowding in of private sector investment.

### 3. Developing National Financing Vehicles

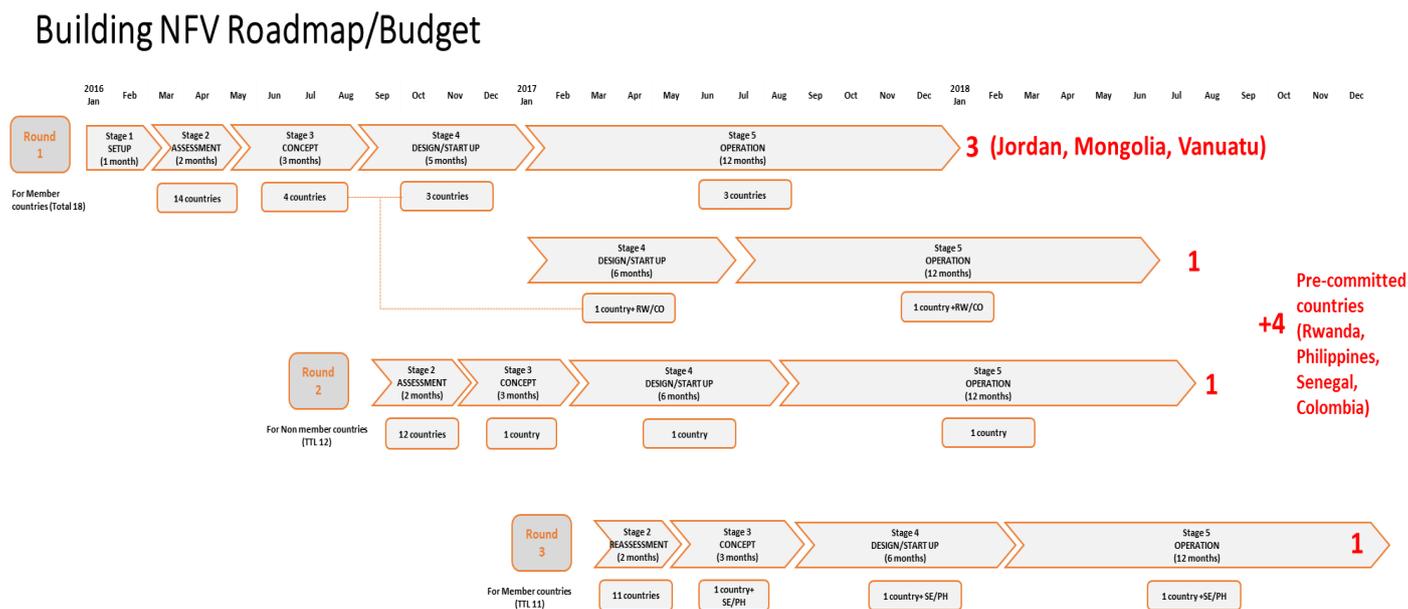
#### 3.1 Background

39. If finance is to flow to countries, their institutions need to have the ability to handle it, i.e. processes to manage funds, governance systems, a solid management team, and a pipeline of well-developed projects. GGGI proposes to build NFVs implement these processes and subsequently build the pipeline of projects to access domestic and international climate finance. This is a natural area of comparative advantage for GGGI as these vehicles are traditionally too small for the larger multilaterals to engage with. Specialized vehicles are needed for handling international climate finance because international finance is traditionally handled by Finance Ministries via central bank regulations. In the few cases where such vehicles exist, capacity is limited to the handling of grants. The ability to blend or handle private capital is rare, if not absent. Therefore, to fully leverage the benefits of climate finance and reduce the cost of capital for enabling more investment into priority sectors, teams and institutions with combined mandates are needed. This requires specialized skills, management teams and technical ability for project assessment, monitoring and overall asset management.
40. Given the critical role of domestic institutions in achieving national development goals, GGGI proposes to increase programmatic efforts in building NFVs. Policymakers and financial regulators in developing countries require significant technical and institutional support to develop domestic systems to manage access and deployment of green finance. GGGI will act as a neutral and independent matchmaker between national governments seeking access to green and/or climate financing, climate finance facilities, development banks and private companies.

#### 3.2 Delivery plan and activities conducted

41. Since November 2015, GGGI is scoping out a program of national financing vehicles to build. As financing needs are different for different countries, a “one-size fits all” does not work. Therefore, comprehensive assessment criteria was developed as a first step to systematically scan Partner countries to identify potential vehicles that could fulfill the task of channeling international finance and domestic sources of capital. The roadmap being followed for the buildup of this area of work is provided below.

Figure 3.1: Building NFV Roadmap/budget



42. In the identification of NFV’s, priority was given to Member countries, of which 14 were chosen. The 14 countries were assessed via a desktop review against a standard set of criteria developed in Stage 1. These criteria were developed in consultation with the International Finance Corporation, who has the longest history in developing and designing financial institutions. This was followed by interviews with selected stakeholders. At the end of an initial scan in April 2016, countries with the highest scoring against the criteria were considered, and four were proposed for further development. Once pre-selected, in consultation with respective governments, GGGI will choose to take forward three of the four for further development. The remaining country NFVs will be developed at a later stage once further discussions with government/relevant entities is completed. During the selection process, stakeholders such as the Government national designated authority, financiers (including climate fund such as the GCF, MDBs, DFIs, donor countries and organizations), private financial institutions, market players (including project developers, equipment providers) and utilities were consulted.

43. An overview of the standardized phase-wise approach is shown below:

**Stage 1: Set up (duration of a month – one time)**

**Stage 2: Application and assessment (2 months) (current stage)**

- Application of criteria.
- Diagnostic analysis of the existing institutional capacity including legal, financial, managerial, and of governance systems.
- Selection of countries (4-6 countries).

**Stage 3: Concept (3 months)**

- Development of business plans (5 countries).
- Discussion of business plans with government institutions and other relevant stakeholders

- Dialogue with potential funding sources – donors, MDBs, local financial institutions, the Green Climate Fund (GCF) etc.

### **Stage 4: Design/Startup (5-6 months)**

- Preparation of operating guidelines and management plans for the NFV operation for selected countries (3 countries).
- Development of marketing and promotional materials.
- Training of the national NFV team.
- Capacity building for participating FIs (if appropriate/relevant).

### **Stage 5: Operation (6-12months)**

- Support the successful start of NFV operations, or the revival of operations if the NFV is dormant
- Support dissemination activities (for awareness raising such as workshops, conferences etc).
- Identification and origination support for project pipeline development.
- Monitoring of NFV operations and management.

GGGI has set a clear go/no-go decision process at each stage listed above. The specific criteria per stage is provided below;

### **Stage 2 to Stage 3**

- 1) GGGI prioritization / commitments to in-country governments.
- 2) Transparent evaluation by external consultants.
- 3) Engagement with country team.

### **Stage 3 to Stage 4**

- 1) Target market attractiveness – size, segments, competitiveness
- 2) Strategic fit with GGGI's work – areas, in-country planning/work
- 3) Agreement on NFV business plan with the country NDA, government institutions, regulatory institutions

### **Stage 4 to Stage 5**

- 1) NFV Feasibility – financial and operational
- 2) NFV management team – CEO/head, technical expertise, business development expertise
- 3) Anchor investor in place
- 4) Necessary regulatory clearances in place and government support established

44. During the first half of 2016, GGGI implemented Stage 1 (Setup) and Stage 2 (Assessment) was completed.

45. Under the Stage 2 work, GGGI conducted an assessment against pre-determined criteria to evaluate the following financial institutions/government entities in 14 Partner countries.

Country	Institutions
Cambodia	National Council for Sustainable Development (Ministry of Environment)
Costa Rica	Banco Popular y de Desarrollo Comunal (BPDC)
Fiji	Fiji Development Bank (FDB)
Guyana	Guyana REDD+ Investment Fund (GRIF)
Indonesia	Ministry of National Development Planning (BAPPENAS); Ministry of Finance, Fiscal Policy Agency PT Sarana Multi Infrastruktur (Persero) (“PT SMI”) - Ministry of Finance
Jordan	Jordan Environmental Fund (JEF); Jordan Renewable Energy and Energy Efficiency Fund (JREEEF)
Kiribati	Ministry of Public Works and Utilities, Energy Planning Unit (MPWU); Ministry of Finance and Economic Development
Mexico	Nacional Financiera (NAFIN); Banco Nacional de Obras y Servicios Públicos (BANOBRAS)
Mongolia	Central Bank of Mongolia (BoM); Development Bank of Mongolia (DBM); Trade and Development Bank of Mongolia (TDB); XacBank; Golomt Bank
Papua New Guinea	Bank of South Pacific (BSP); Credit Corporation Limited PNG
Peru	Corporación Financiera de Desarrollo S.A. (COFIDE)
Thailand	Kasikorn Bank; Office of Natural Resource and Environmental Policy and Planning (ONEP)
Vanuatu	Vanuatu Agricultural Development Bank (VADB); National Bank of Vanuatu (NBV)
Vietnam	Ministry of Planning and Investment (MPI); Ministry of Natural Resources and Environment (MONRE); Vietnam Development Bank (VDB)

46. Based on the results of the technical scores achieved through the assessment, GGGI selected the following 4 Partner countries/institutions to proceed to the next Stage 3 activities (Concept).

Country	Institution
Indonesia	PT Sarana Multi Infrastruktur (Persero) (“PT SMI”) - Ministry of Finance
Jordan	Jordan Environmental Fund (JEF)
Mongolia	XacBank
Vanuatu	Government (TBD)

47. GGGI is currently undertaking activities under Stage 3 (NFV concept development) to be completed in July and August 2016. The NFV concept development work includes in-person discussions with key public and private sector representatives that provide both valuable information and ideas. This process supports the teams to design the most effective NFVs to fit each country’s conditions.

48. Each country faces enormous green finance demands which should drive the development and growth of green financial markets. However, what is the highest and best use of a green national financial vehicle in the development of that market? A reasonable answer might be that a country's green NFV should help to address those most pressing needs, not already addressed by pre-existing public or private or joint public-private institutions or programs. Every country needs to decide which are the most relevant sectors; e.g. Renewable Energy, Energy Efficiency, Forestry, Agriculture, Water resource management, etc.
49. In addition, a country needs to determine whether the highest demand and priority for green bankable projects is in populated urban areas or rural areas, the scale of green projects and the institutions in most need of financing, as institutions and financial products designed to most efficiently and effectively finance large-scale projects and firms are unlikely to most efficiently and effectively help finance micro, small, or medium-sized projects or firms. GGGI's NFV concept-development work is intended to guide each country through this prioritization process, particularly where the NFV will be development, which tends to be a fund, capable of holding different financial instruments.

### 3.3 Lessons learnt and experiences

50. GGGI strongly suggests that, whatever the specific circumstances of the host emerging market country, lessons learned from other countries' experience be considered by countries aiming to launch new green finance vehicles. These include the following:
- a. Launching a successful NFV is a complex task that requires a tailored approach: All parties involved in the design and launch of a NFV need to allow for sufficient time and the deployment of expert resources. A country's unique macro-situation/circumstances, sectoral and geographic target market priorities, legal/regulatory environments, etc. should be considered before key operational design elements are agreed;
  - b. Ensuring that the focus of the sponsoring government, NFV governing body, and in-house/out-sourced staff remains on the origination, underwriting, and monitoring of 'bankable' projects and green firms with sound credit profiles, with a shared understanding that such projects should use only commercially well-proven technologies, be well-managed, and have a low probability of financial default/losses. However, as NFVs are typically set up to fill gaps in the capital markets for their prospective debt, equity or guarantee product clients, NFVs are often the 'lenders' (or 'investors') 'of last resort.'

This status often means that the NFV will have to accept more apparent credit or return risk than the rest of the capital market available to prospective clients, particularly in the early stages of investment. Additionally, NFV staff must expect high levels of deal origination, due diligence, risk assessment, credit and investment underwriting, and portfolio management skills to discern, make and manage those investments which have lower real than market-perceived risk. This is a principal reason for NFVs to request additional expertise.

- c. Recognizing from the beginning that a common failure of government-sponsored funds established to promote the financing of public infrastructure has been the sponsors'

failure to plan and structure the funds for long term financial sustainability. Financial sustainability of any fund – public, private or mixed public and private - can only be achieved if an economically realistic revenue model is designed to provide for sufficient operating margins to cover the cost of capital, the costs of administration and management, and portfolio losses reasonably expected under various stress-case scenarios. As with any infrastructure investment vehicle, typical potential sources of revenue for green NFVs will normally include, inter alia, principal amortization payments, risk-weighted interest premiums and/or equity returns, risk-weighted guarantee fees for credit enhancement products, restructuring fees; annual surveillance fees and other such domestic revenue sources; waiver and consent fees; application fees and management fees, and subsidy streams from government, donor and/or other third-party sources. Private sector investment fund management companies face the issue of long-term sustainability which is resolved by structuring each separate fund under their management as a form of ‘closed-end’ fund with the success or failure of each fund being independent of each other. However, one fund’s success or failure will typically have an impact – often a large impact – on the fund management company’s reputation and thus its ability to raise capital for additional funds addressing the same sectors.

- d. Adequate revenue accounting and management systems need to be put into place from the beginning. Only a revenue model is not sufficient to ensure the economic sustainability of a fund. The management systems necessary to make the revenue model work in practice are also vital. Key elements of successful investment fund revenue management systems will include, inter alia, internal cash and accrual accounting systems meeting international standards; secure cash management systems, including well supervised grant and loan disbursement systems; close monitoring of principal and interest payments, fee payments, etc.; a well-supervised system for receiving, reviewing and granting consents for modification of transaction provisions over the life of transactions; and so on.
- e. A robust capital adequacy model operated by competent individuals with sufficient institutional power and autonomy to enforce capital adequacy guide-lines needs to be designed and implemented. Capital adequacy models are used to guide:
  - i. Transaction risk underwriting and financial product pricing;
  - ii. The assignment of risk-weighted ‘capital charges’ (‘reserves’ in banking parlance) to every transaction; and
  - iii. ‘Back-end’ portfolio management work, and
  - iv. Deal remediation and work-out functions and the tracking of interim (pre-recovery) and ultimate (post recovery losses).
- f. Clarity and transparency of green NFV management procedures. Without clear and transparent management procedures, a NFV is able to establish itself as a credible player in the market with its own governing body regardless of composition (co-investors, developers, equipment suppliers, or even its own internal staff and external experts). These key management procedures include, *inter alia*:
  - i. NFV internal HR policies and the procurement of outside expertise and services;
  - ii. Solicitation of green project and green firm financing proposals from developers, firms, intermediaries, etc.;
  - iii. Procurement of construction, equipment etc. By NFV grantees, borrowers, and equity investees;

- iv. Technical and financial risk assessment systems;
  - v. Selection criteria/underwriting guidelines for grants, and risk underwriting criteria for loans, financial guarantee products, and equity investments; and
  - vi. Portfolio management methods, including deal remediation or work-out procedures.
- g. Recruiting and organizing sufficient numbers of qualified in-house and/or external human resources well before the launch. This must include developing and training in-house and out-sourced staff in use of key operational systems before the launch for eg: accounting and other key financial management systems. Governments, and at times private players, launch infrastructure investment vehicles ‘on the cheap’ with respect to internal or out-sourced staff. This should be avoided.

### 3.4 GGGI’s NfV program

51. The NfV project is a three-year project which GIS started developing in 2016. During the 2016 progress, there has been significant demand from Partner countries to scope and assess potential NfVs. Accordingly, GGGI observes there is strategic value in this initiative and thus wants to develop it further as a core competence area.
52. GGGI is naturally and uniquely positioned to develop NfVs for the following reasons:
- a. Multi-lateral development banks tend to be hard-pressed to assist in this complex activity, particularly in small and medium-sized countries, due to manpower limitations and budgetary constraints.
  - b. GGGI’s country teams are generally placed in a country’s National Designated Authority (NDA e.g. Ministry of Environment) who eventually tend to designate Domestic Financial Institution (DFI) to receive concession climate funding such as GCF.
  - c. Considering GCF is the leading source of concessional funding and GGGI’s institutional relationship with the Fund, this avenue must be utilized.
  - d. Links and relationships with sources of funding such as climate funds (including the Global Environment Facility, Adaptation Fund, Climate Investment Facility) MDBs (including the WB, IFC, ADB, IDB, EIB), Development Financial Institutions (including FMO, JICA, JBIC, KfW, OPIC)
  - e. GGGI’s country presence is a significant advantage as the teams bring in-depth country knowledge of local financial systems, government regulations, national financing institutions, as well as strengths and weaknesses of each country.

### 3.5 Skills required to deliver NfVs

53. GGGI staff do not come with skillsets suitable for NfV development. GGGI therefore has been actively recruiting to fill-in its skills base with a team of investment/finance specialists with the following experience;
- a. Financial: deep knowledge of national budgets as well as structured finance
  - b. Legal: understanding of legal and tax aspects in developing a fund/financial product
  - c. Fund development experience in developing countries
  - d. Blended finance, networks in private/public finance, etc.
54. Not all the skills will be recruited as permanent staff; some are and will be consultants.

## 3.6 Next steps in GGGI's NFV work

55. As of now, GGGI has already committed to developing four NFVs (Colombia, Philippines, Rwanda, and Senegal) under country program budgets. Under the current global NFV development exercise, GGGI selected four NFVs (Indonesia, Jordan, Mongolia, and Vanuatu) to proceed to the Stage 3 work (Concept development).



56. Within the global NFV development proposal, GGGI has an ambitious target to develop 10 NFVs (8 above mentioned plus 2) by the end of 2018. Furthermore, GGGI has been approached/requested support by 6 more countries so far (both Member and non-member countries) taking the count to a total of 16 countries.

57. Decisions on the financial products NFVs will offer will be driven by targeted market analyses. This places the emphasis on the expressed needs of borrowers and equity-seekers in the very specific, prioritized targeted market(s), (the 'niche(s)') by the NFV. Close attention will be given to evaluating the needs of micro-, small and medium sized, and large project sponsors, supplier firms, etc. Similarly, differing locational characteristic of the potential borrowers or investees – e.g. urban vs. rural – can also lead to differences in the need for a specific financial product.

- a. **Financial products:** The range of potential financial product choices is eventually made by the NFVs. NFVs should avoid offering the full spectrum of possible products targeting a wide market of borrowers/equity-seekers' as it often leads to generalization of services with lower quality offerings.
- b. **Grants:** Certain new green finance markets can be best-addressed through grant mechanisms, including:
  - Capacity-building, including training of regulators and other government personnel playing key roles in the development and implementation of new legal and regulatory frameworks necessary to encourage the development of

- green power, energy efficiency or any other under-developed green sector professional resources, such as engineering, sector-specific law, planning, etc.;
- Funding of output-based aid and similar ‘pay- for performance’ type arrangements;
- c. Loans: Debt finance is necessary to fill capital market gaps in any green project or green corporate finance sector, however attention should be given to the type(s) and formats of debt most urgently needed a specific type of borrower:
- Short term cash-flow financing secured by projected future revenues to help manage month-to-month variations in receipts and payments within each fiscal year.
  - Conditional short- to mid-term loans for project preparation, with repayment required only if the project reaches financial close.
  - Short- to mid-term construction ‘bridge financing’ intended to see a project or firm through the planning, construction and test operation of a project with the hope of being ‘taken out’ with a long-term loan upon construction completion.
  - Long term loans covering both the construction and operating phases of a project’s life? If so, for how long should be the NFV-provided debt.
  - If existing institutions in the particular debt market are already capable of and interested in supplying the short- and mid-length maturities of individual permanent green project or green corporate finance transactions, can the NFV operate most efficiently (i.e. with the most crowding-in impact) be the supplier of only the longer-maturity portions of individual transactions.
  - Should an NFV offer debt only on a senior-secured basis or should it also provide junior lien debt.
  - Is debt best provided directly by the NFV to borrowers or less directly through a ‘loans-to-lenders’ format, as many infrastructures as designed to do in order to induce existing institutions to share in the risk of each transaction, build their internal deal-origination, structuring and management capacity. If a loan-to-lenders approach is employed, what percentage of each deal’s credit risk should the NFV require the bank lender to take and hold.
  - Can the NFV immediately raise capital for direct- or loan-to-lenders programs in a local or international bond market or eventually replenish its capital in that fashion? If so, should it use the proceeds of bond issues to set up ‘blind’ pools ‘dedicated’ pools (once sufficient loans have been originated and ‘warehoused’?) Can it expect to be able to securitize bundles of seasoned loans to replenish its capital base.
- d. Interest rate subsidies: Interest rate subsidies are particularly important in countries experiencing high interest rates. Subsidies can be provided directly to borrowers through direct grant payments or indirectly through grants to the lending institution which bridge the gap between the institution’s all-in cost of funds and the all-in cost of funds they wish to provide to the borrower. While the former may be administratively efficient for an NFV making relatively large loans for projects and firms, it becomes less and less efficient the lower the average loan size. Most NFVs appear to have opted for the indirect subsidy delivery technique.
- e. Full or partial credit guarantees: Full or partial credit risk guarantees which provide prompt, timely payment of scheduled principal and interest in the event of borrower

default can be powerful ways for Green NFVs to crowd-in capital to green projects and firms. Credit guarantees can be structured in a variety of ways, including as:

- Full credit guarantees provided by sovereign or sub-sovereign governments – such as the US Department of Energy Loan Guarantee Program, which concentrates on large-scale renewable energy projects and whose origination, risk-assessment, underwriting, capital adequacy model and portfolio management and work-out procedures are all worth close study and possible emulation by newly formed NFVs seeking to assist medium- and large-scale projects;
  - Irrevocable Letters of Credit, a traditional credit enhancement tool of the commercial banking industry, ‘monoline’ financial guarantee insurance such as that offered by the Private Infrastructure Development Group’s GuarantCo organization.
  - Partial credit guarantee mechanisms such as the USAID Development Credit Authority program with relatively low limits on the percentage of a loan (or bond issue) it will guarantee have more ‘crowding-in’ leverage power than full credit guarantee products and they may have more mid- to long-term development impact by inducing the institutions benefiting from the guarantees to build the capacity to evaluate credit risk, structure transactions, and help manage them once they have closed.
  - First loss guarantee mechanisms which create a way for guarantors which have a higher risk appetite than other guarantors interested in credit enhancing or lending without credit enhancement to the same transaction, to create a synthetic layer of junior debt, reducing the default risk profile of debt to attract the guarantor or lender to the transaction. GuarantCo has included this type of mechanism in its list of guarantee product offerings. GuarantCo also offers to co-guarantee debt with other guarantors and it also offers an excess-of-loss option to back-stop other guarantors by limiting their possible losses to a specific fraction of the total debt amount they have guaranteed.
- f. Partial risk guarantees (PRG): Partial risk guarantees cover losses to lenders (or bondholders) if only a narrowly-defined risk results in the financial default of a loan. Partial risks which can be covered by various PRG mechanisms most commonly include:
- Currency exchange, transfer and convertibility risk, as often offered by public bi-lateral and multi-lateral and commercial export-import finance and development finance agencies, such as the US Overseas Private Investment Corporation (OPIC) or the World Bank Group’s Multilateral Investment Guarantee Agency (MIGA); or
  - Government performance or ‘non-honoring’ risk, the risk of a public entity failing to perform its obligations with respect to a private or PPP project, apparently the most common use of the World Bank’s PRG product.
- Some PRG programs can be more difficult to administer than full- or partial-credit guarantee programs because of the difficulty of assigning blame for a financial default to the occurrence and impact of one narrowly defined risk in what are undoubtedly complex circumstances. A credit default is clear and unambiguous when it occurs.
- g. Equity: Often the most urgent need expressed by renewable energy and energy efficiency project and other green project developers in both fully developed and emerging market countries is for equity. While there is a plethora of infrastructure

equity funds, including a large number interested in investing in green projects and firms, they often have very high equity return hurdle rate annual return expectations (e.g. 20 – 40%) and relatively short exit event targets (e.g. 3,5 or 7 years), putting their capital effectively out of reach for many projects and firms whose projects require more time to plan, construct, and achieve lower but still reasonable profitability than expected by many funds. In addition, many equity funds will not commit to investments under relatively late stages of a project's development, e.g. when an off-take agreement is close to being finalized or even after such an agreement has already been finalized. Some public entities including the private sector arms of multi-laterals such as the World Bank Group's International Finance Corporation (IFC) and bi-lateral development finance institutions have established equity investment programs which either make direct equity and quasi-equity investments such as the IFC's direct investment and green projects solar, wind and other renewable energy generation projects or less direct equity investments in local market financial institutions like local private equity funds which may investment in green projects.

- h. **Blended Finance:** According to the World Economic Forum, the term 'Blended Finance' refers to the "strategic use of development finance and philanthropic funds to mobilize private capital for development." The discussion above has typically used the terms "crowding in" or "leveraging in" to describe fundamentally the same broad class of processes where one party such as a government agency or a multi-lateral development finance institution is willing to take more risk or longer risk than other investors in order to induce one or more of those other investors to commit their capital to the deal structure. The use of the term "blended finance" has been introduced at roughly the same time as the emergence of some philanthropic institutions and other so-called "impact investors" in the private sector who express interest in using either some portion of their corpus investment portfolios or their annual grant-making budgets to make low risk-adjusted rate debt, quasi-equity or equity investments either in green projects or funds which themselves fund green or other socially worthy projects.

A relatively wide range of non-philanthropic entities such as Triodos Investment Management, Equity for Tanzania, and Blue Orchard Finance also appear to be interested in participating in blended finance operations, as indicated by a recently published survey of impact investors by the Global Impact Investors Network (GIIN). This survey also found that respondents ranked renewable energy and energy efficiency as the top two of their environmental impact investing priorities. It is interesting to note that a significant number of the impact investors surveyed by the GIIN - 65 of 158 or a little over 40% – indicated that they are principally targeting 'below market rate returns. 'It is also worth noting that an even larger number of respondents – 79 of 158 or 50% - claim to be emerging market-focused investors who allocate at least 75% of their impact investing to emerging markets. The emergence of both philanthropic and non-philanthropic impact investors – 157 of which reportedly committed to making USD 15.2 bil in 7,551 different impact investments in 2015, according to the same GIIN survey – suggests that this category could emerge as significant contributors to new green NFVs.

**Conclusion**

58. With regard to bankable project preparation for NDCs, GGGI will continue this exercise in the 2017-18 period. Projects identified in the original NDC assessments will be taken up for further development. Considering that projects identified in the 2016 assessment have now been integrated into country programs, a pathway has thus been established to mainstream this into the work program as this project development work contributes directly to GGGI achieving its strategic outcomes. Going forward, all project development work will be identified as to whether it is part of the NDC or not.
59. With regard to NFVs, GGGI expects to continue working with an increasing number of countries, depending on budget availability, in conceptualization, design, capitalization and launch of NFVs in the foreseeable future.
60. GGGI will conduct a self-evaluation at the end of every fiscal year. However, considering that NFV development work is complex, time-consuming and changeable in nature, it would realistically take a three-year time period to evaluate whether a NFV development initiative has been successful (i.e. until the end of 2018). During that 3-year period, a results based performance monitoring system can be set-up to evaluate the progress of the NFV.

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5. Annex A

Table 5.1: Summary of NDC Review Findings for 20 Partner countries

Countries	Status: GGGI countries						INDC review process			INDC content				
	GGGI country status			Existing CPF	GIS in-country project scoping	Country request for project scoping support	INDC GGGI country survey sent	Response to GGGI INDC survey	INDC Review	Specificity		Financial information		
	Member	Operation	Classification							Quantified sector targets	Planned measures	Aggregate investment	Sectoral investment costs	International support required
Cambodia	✓	✓	Member LDC	✓			✓	✓	✓	✓				✓
Colombia		✓	UMIC	✓			✓	✓	✓		✓			
Costa Rica	✓						✓		✓					
Ethiopia	✓	✓	Member LDC	✓			✓	✓	✓	✓	✓			
Fiji	✓	✓	Member LMIC			✓			✓		✓			
Guyana	✓						✓		✓		✓			
India		✓	LMIC		✓		✓		✓		✓			
Indonesia	✓	✓	Member LMIC		✓		✓	✓	✓		✓			
Jordan	✓	✓	Member UMIC					✓	✓		✓			
Mexico	✓	✓	Member UMIC						✓					
Mongolia	✓	✓	Member LMIC	✓			✓	✓	✓		✓	✓		
Morocco		✓	LMIC				✓	✓	✓	✓	✓			✓
Nepal		✓	LDC				✓	✓	✓		✓			
Peru		✓	UMIC				✓	✓	✓					
Philippines	✓	✓	Member LMIC	✓			✓	✓	✓					
Rwanda	✓	✓	Member LDC	✓	✓		✓	✓	✓		✓	✓		
Senegal	✓	✓	Member LDC		✓	✓	✓		✓	✓	✓	✓		✓
Thailand	✓	✓	Member UMIC			✓	✓	✓	✓		✓			
Vanuatu	✓	✓	Member LDC						✓		✓			✓
Vietnam	✓	✓	Member LMIC	✓	✓		✓	✓	✓		✓			✓