Green Deals:
Greening COVID-19 Recovery & Achieving Net-Zero 2050

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In 2019 Climate Change became widely accepted as the defining threat of our time.

Glasgow COP26 planned for 2020: the moment of truth for the Paris Agreement as countries submit their new Nationally Determined Contributions – they need to be more solid and more ambitious.

“Climate change is the defining threat of our time. Our duty to each other and to future generations is to raise ambition.”

António Guterres, United Nations Secretary-General at COP23
The Sustainability Crisis:
Climate change, plastic pollution, species extinction, deforestation, air pollution, soil degradation, water scarcity......

• Only 9% of all plastic waste ever produced has been recycled. About 12% has been incinerated, while the rest — 79% — has accumulated in landfills, dumps or the natural environment.

• 10 rivers alone carry more than 90% of the plastic waste that ends up in the oceans.

Source: UN Environment
Then COVID-19 happened—what has changed?

• COVID-19 has changed our lives more rapidly than anyone could imagine.
• For many it is a sign that our old life was not sustainable.
• Can we green the COVID recovery?
• How will the economic crisis affect sustainable development?
• Can we go back to our old lives?
• Can there be a Green New Deal?
COVID and Economic Crisis

- Massive job losses everywhere
- For Caribbean, travel and tourism down 80-90%
- Stimulus bills massively boost government debt and are unsustainable & unaffordable for many
- End of globalization?
- But renewable energy doing much better than coal and electric car sales remarkably resilient
- **Green Recovery focus: Green Jobs!**
Achieving Green Growth & Climate Action Post COVID-19

GGGI Technical Report No. 13

In this report, GGGI explores the challenges and opportunities posed by the COVID-19 pandemic, the links between health and climate crises, and the lessons we have learned from past disasters to build back better.
COVID-19 recovery: green jobs in renewable energy and energy efficiency projects outnumber brown jobs in fossil fuel projects by factor of 2-5

EMPLOYMENT ASSESSMENT OF RENEWABLE ENERGY:
Power sector pathways compatible with NDCs and national energy plans

Case studies Mexico, Indonesia, Rwanda

June, 2020
Clear Need for “Green Growth”

... a development approach that seeks to deliver economic growth that is both environmentally sustainable and socially inclusive.

The green growth model seeks opportunities for economic growth that are:

• low-carbon and climate resilient
• prevent or remediate pollution
• maintain health natural ecosystems
• create green jobs
• reduce poverty
• enhance inclusion
GGGI at a Glance

- Intergovernmental Organization
- Established in 2012
- Headquartered in Seoul, Republic of Korea, GGGI has 38 Members
- Including OECS since 2019
- OECS and GGGI partner on:
  1. enhanced climate action (NDCP-CAEP);
  2. GCF readiness;
  3. green entrepreneurship support
Results at a Glance: 2019 Annual Report

- **21**: Green growth policies adopted by 9 governments with GGGI's support
- **7**: New members joined GGGI, including Angola, Burkina Faso, Ecuador, Sri Lanka, Uganda, Uzbekistan, and Organisation of Eastern Caribbean States (OECS)
- **44**: Policy outputs aimed to improve the enabling environment for green growth
- **131**: Projects reported in 2019, 187% increase from 2018 (70)
- **69**: Completed advisory outputs that inform the development of green growth policies
- **50**: Completed advisory outputs that informed decisions on green growth investments
- **37**: Projects brokered
- **61**: Partnerships
- **247**: Capacity building activities, with 62% female participation
• For Indonesia and Mexico GGGI assessed that millions of green jobs will result from implementing RE targets in country NDCs.

• In Fiji, a recent GGGI study estimated that green growth could generate 2.1 and 3.2 times more jobs by 2030 and 2050, respectively—mainly in electricity, transport, and forestry—compared to BAU.

• In Uganda, according to EPRC/GGGI/NCE (2016), the green growth transition could generate 1.3 million jobs by 2020, rising to around 4 million in 2040, compared to BAU. Sustainable agriculture offers the highest potential.

• In Cambodia, GGGI analysis estimated that greening key industrial sectors of Cambodia—food processing, bricks, garments, and electronics manufacturing—would provide an additional 512,000 jobs relative to BAU by 2030.
NetZero Leadership

• At UNGA 77 countries committed to NetZero2050
• Danish Prime Minister Mette Frederiksen pledged to work to achieve Denmark’s ambitious 70% cut in CO2 emissions by 2030.
• Danish Pensionfunds invested $15Bn in renewable energy to date and pledged to invest another $50Bn by 2030

Source: World Resources Institute
Fiji has adopted a detailed development plan that could see the Pacific Island country soak up more carbon than it emits by 2050. Fiji’s Low Emissions Development Strategy was launched at the UN climate conference held in December 2018 in Katowice, Poland.

As Vanuatu’s government looks to improve their electricity supply while following a path of sustainable, environmentally-friendly growth, GGGI is playing a key role in securing investment for the Pacific Island country to achieve its development goals.

GGGI, which developed parts of the National Energy Road Map, covering energy efficiency and green growth — has helped create the National Green Energy Fund to mobilize finance for investment.
Private Sector Entrepreneurship is critical for green job creation through sustainable development

- Need for green innovation in developing countries is getting more urgent—most future growth in emissions is projected to be from developing countries
- Investment in green sectors in developing countries is expected to reach $6.4 trillion over the coming decade
- Small- and medium-sized enterprises are often the dominant form of economic activity in developing countries and are the main provider of jobs
- Startup ventures are most often the channel through which new and disruptive technologies reach the market

Current entrepreneurship programs like accelerators tend to focus on developed countries and technology markets

Source: Gust Global Accelerator Report 2016

Challenge: Entrepreneurs in developing countries with innovative green growth business ideas often lack access to technical training, networks, mentorship, and seed capital to effectively grow and scale up their businesses
• Buildings are responsible for an estimated 32% of global energy use and almost 30% of total GHG emissions.
• Heating and cooling energy requirements can be lowered by 50-90% through retrofitted buildings.
• New, energy-efficient buildings, in many cases, use almost zero energy for heating and cooling.

Source: Global Environment Facility
# Natural Climate Solutions

## Top 10 Mitigation Pathways with Co-Benefits

*Natural Climate Solutions have the same impact on emissions as taking millions of cars off the road.*

<table>
<thead>
<tr>
<th>Natural Climate Solutions</th>
<th>Global Mitigation Potential: Approximate Number of Cars Removed Each Year in Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reforestation</td>
<td>650M</td>
</tr>
<tr>
<td>Avoided Forest Conversion</td>
<td>620M</td>
</tr>
<tr>
<td>Natural Forest Management</td>
<td>189M</td>
</tr>
<tr>
<td>Avoided Peatland Impacts</td>
<td>143M</td>
</tr>
<tr>
<td>Cropland Nutrient Management</td>
<td>136M</td>
</tr>
<tr>
<td>Trees in Cropland</td>
<td>94M</td>
</tr>
<tr>
<td>Peatland Restoration</td>
<td>84M</td>
</tr>
<tr>
<td>Conservation Agriculture</td>
<td>80M</td>
</tr>
<tr>
<td>Restoration of Coastal Wetlands</td>
<td>59M</td>
</tr>
<tr>
<td>Avoided Coastal Wetland Impacts</td>
<td>43M</td>
</tr>
</tbody>
</table>

*Cost-Effective*

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Investment in Solar Freezer Project, Vanuatu

Key Investment Highlights

- Improved productivity
- Increased revenues
- Easier work for men and women
- Less travel time required to buy food
- New income streams: selling cold drinks and ice pops, renting freezer space
- Increase knowledge on PV systems and on safe food handling
- Increased business for PV suppliers
- Freezer systems provided free of charge under a grant agreement with the Vanuatu Government
- Owners required to save money each month in a special savings account used for maintenance and repairs
- Estimated average savings per bungalow of USD $100 per month

Investment Opportunity

- Solar-powered freezer systems installed at ten rural tourism bungalows on five islands in Vanuatu
- Project Partners: GGGI, Vanuatu Government, Vanuatu Skills Partnership
- Improve electricity access, reliability, and affordability for small tourism operators
- Increase and improve income streams for tourism operators
- Contribute to Vanuatu’s Nationally Determined Contribution and updated National Energy Road Map objectives to increase the use of renewables in all sectors and achieve 100% renewable electricity production by 2030
PNG : Green Telecom Towers
Investment Overview (Readiness : Origination Phase)

• The proposed investment aims at funding the Energy Service Companies (ESCO) in PNG towards providing simple, efficient, and reliable power for telecom networks by replacing diesel fuel with solar hybrid system.

• A total of 100 towers operated by the major telecom operators in PNG is being targeted in the current phase. The total investment required is approx. US$ 20 million.

Project Highlights

• Solar hybrid system addresses the two main challenges faced by the telecom tower companies in PNG
  o High operating expenditure: Energy costs account for ~30 to 40% of total operational expenditure for a telecom tower company.
  o Diesel pilferage losses ~20% have been observed in the industry which further increases the energy costs

• Pilot project in PNG has demonstrated the following benefits
  o Monitoring of the project during the first year of operation has revealed an operational cost saving of over $40,000 and a 72% reduction in diesel fuel consumption.
  o Reduced maintenance requirements and increased service intervals.

<table>
<thead>
<tr>
<th>Project Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Asset ownership</td>
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<tr>
<td>Cost of Solar Hybrid system</td>
</tr>
<tr>
<td>Capital Structure</td>
</tr>
<tr>
<td>Contract Period</td>
</tr>
<tr>
<td>Funding</td>
</tr>
<tr>
<td>O&amp;M</td>
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<tr>
<td>Risk</td>
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<tr>
<td>Expected Payback</td>
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</tbody>
</table>
Guyana, Urban Sector Solar Energy Program 2018

- Barriers for Distributed Generation were low technology awareness, lack of finance and inappropriate regulation.

### # of companies pipeline

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Electrical demand</td>
<td>86,000 MWh/year</td>
</tr>
<tr>
<td>GPL demand</td>
<td>21,000 MWh/year</td>
</tr>
<tr>
<td>Self-Generated demand</td>
<td>65,000 MWh/year</td>
</tr>
<tr>
<td>PV power</td>
<td>14 MWp</td>
</tr>
<tr>
<td>PV energy auto consumed</td>
<td>18,000 MWh/year</td>
</tr>
<tr>
<td>PV coverage</td>
<td>22 %</td>
</tr>
<tr>
<td>Emission avoided</td>
<td>16,500 tCO2eq/year</td>
</tr>
<tr>
<td>Total investment</td>
<td>19,000,000 USD</td>
</tr>
<tr>
<td>Avg. Internal Rate of Return</td>
<td>22 %</td>
</tr>
<tr>
<td>Avg. Payback period</td>
<td>4.5 years</td>
</tr>
</tbody>
</table>

### Selection Criteria for Sponsors

- Local/Regional experience
- Technical expertise
- Track record on distributed Solar PV
- Engagemen t with Solar Companies
- Develop finance solutions

### Project pipeline

- Regulation Assessment
- Technology awareness for private and public sector
- Scale up Renewable Energy through private sector participation in Rooftop solar PV
- Engagement with Solar Companies
Jordan: Amman Bus Rapid Transit (BRT)

Project Overview

The Bus Rapid Transit (BRT) is the first public transport project that includes the development of infrastructure and transport operating system in Amman.

- 32 km dedicated bus lanes separated from other regular traffic with lane barriers serving, sidewalks, mixed-traffic lanes and non-motorized lanes.
- As per GGGI proposal, a critical section of the BRT system is expected to run on a fully electric bus system.
- 60 modern buses with capacity of 120 passengers per bus.
- High quality stations with park-n-ride facilities
- Integrated fare collection system
Rwanda: Green Certification of the New Bugesera International Airport

The Government of Rwanda (GoR) through the Ministry of Infrastructure (MININFRA) and GGGI have a standing Memorandum of Understanding (MoU) to advocate sustainability and provide support to the enable a sustainable built environment in Rwanda. GGGI has been supporting GoR in green cities development focusing in Kigali and the six secondary cities.

Along these lines, GGGI in collaboration with MINIFRA embarked on Green Certification of the New Bugesera International Airport. This project is looking into several measures to demonstrate resource efficiency and the overall sustainability of the airport infrastructure when completed.
A GGGI recommended Green Deal for emerging and developing economies – generating a total of jobs ranging from 223,500 in emerging economies to 258,600 in developing economies

- **Building Energy Efficiency renovations & retrofits**: 14,400 jobs
- **Natural capital investment**: 187,500 jobs
- **Green technology R&D for emerging economies**: 2,400 jobs
- **Green physical & digital infrastructure**: 16,800 jobs
- **Education and training**: 2,400 jobs
- **Rural support schemes for developing countries**: 37,500 jobs
Green Deal Policies

Based on GGGI’s experience supporting its member governments in their green transformation, there are several key policy areas that in many countries need reform, and that have a critical impact on the green transition. These policy areas are all worth considering as accompanying measures for a Green Deal.
<table>
<thead>
<tr>
<th>Category</th>
<th>Jobs</th>
<th>Description</th>
<th>Cost (USD Million)</th>
<th>Cost Share in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green physical &amp; digital infrastructure</td>
<td>16,800</td>
<td>- Build solar and wind energy assets</td>
<td>350</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Energy storage, including green hydrogen</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Grid modernization</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Digital network and AI infrastructure</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Sustainable mobility</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Green urban infra – bike lanes, waste recycling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building Energy</td>
<td>14,400</td>
<td>- Insulation</td>
<td>300</td>
<td>25%</td>
</tr>
<tr>
<td>Efficiency renovations &amp; retrofits</td>
<td></td>
<td>- Energy-efficient heating and cooling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Domestic energy storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education and training</td>
<td>2,400</td>
<td>- Green job training</td>
<td>50</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Online education systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Online economy systems for the private sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural capital investment</td>
<td>187,500</td>
<td>- Restoration carbon-rich habitats (forests, peatlands, mangroves)</td>
<td>250</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Climate-smart agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green technology R&amp;D or Rural support schemes</td>
<td>2,400</td>
<td>- Green technology R&amp;D for emerging economies</td>
<td>50</td>
<td>5%</td>
</tr>
<tr>
<td></td>
<td>37,500</td>
<td>- Rural support schemes such as employment-based social assistance programs for developing economies</td>
<td></td>
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</table>
GGGI-GCF Joint Collaboration

Enhancing access to climate finance through readiness support

The Global Green Growth Institute and Green Climate Fund partnership

GGGI’s Readiness Programme activities

As a Readiness Delivery Partner, GGGI can support the Readiness Programme’s implementation through various initiatives.

Private sector mobilisation

In Mongolia, GGGI’s Readiness activities have focused on developing the Mongolia Green Finance Corporation as a mechanism to mobilise private financing to help reach the greenhouse gas (GHG) reduction targets defined in Mongolia’s NDC.

In Vietnam, GGGI helped to establish the National Green Tranche Fund as a tool for the government to leverage private capital to spur public and private sector investments in renewable energy and energy efficiency.

Access to climate finance

GGGI’s Business work is helping Burkina Faso, Cambodia, Cote d’Ivoire, Ethiopia, Fiji, Guyana, Indonesia, Jordan, Mexico, Paraguay, Papua New Guinea, the Philippines, Uganda, and Yemen access climate finance by developing proposals of concept notes to submit to GCF.

Following the completion of a Readiness Programme initiative in Mongolia, national ORX took the submitted a GCF funding proposal for the Mongolia Green Finance Corporation worth USD 3 million.

In Thailand, GGGI’s Readiness activities have resulted in the development of a green investment plan to reduce GHG emissions and enhance the competitiveness of the local industry, which accessed funds for about 30% of the country’s GHG emissions in 2050.

In Rwanda, concept notes for the development of green secondary cities and eco-industrial parks were developed as part of GGGI’s Readiness work.

In Laos, USD 50 million in GCF approved Readiness funding for USD 50 million in GCF approved Readiness funding.

In progress in 2 countries:

Burkina Faso, Cambodia, Cote d’Ivoire, Ethiopia, Fiji, Guyana, Indonesia, Jordan, Laos, Maldives, Mongolia, Morocco, Nepal, Myanmar, Papua New Guinea, the Philippines, Indonesia, and Vietnam.

In progress in 2 countries:

Burkina Faso, Cambodia, Cote d’Ivoire, Ethiopia, Fiji, Guyana, Indonesia, Jordan, Laos, Maldives, Mongolia, Morocco, Nepal, Myanmar, Papua New Guinea, the Philippines, Indonesia, and Vietnam.

The Green Climate Fund (GCF) and the Global Green Growth Institute (GGGI) have formed a partnership drawing on the strengths of both organisations to bolster developing country capacities to deal with the unprecedented challenge of climate change. This partnership is based on the strategic targeting of funds from GCF’s Readiness and Preparatory Support Programme (the Readiness Programme).
Conclusions

► Innovative Sustainable Development is Green Growth
► Building Back better Post-COVID-19: Focus on Green Jobs
► Green investments can provide 2-5 times the jobs compared to brown projects
► For Caribbean focus on:
  ► Supporting Green Entrepreneurs – stimulate innovation in SMEs
  ► Greening Tourism through Renewable Energy and Green Buildings / Infrastructure
  ► Greening Transportation: electric mobility – buses, cars, motorbikes
► Government leadership: ambitious climate action - improved NDCs – NetZero2050
► Finding green finance & private sector leverage: partnering with GCF and other green and climate finance sources
Thank You

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