

# The Bioeconomy's Role in Greening the COVID-19 Recovery

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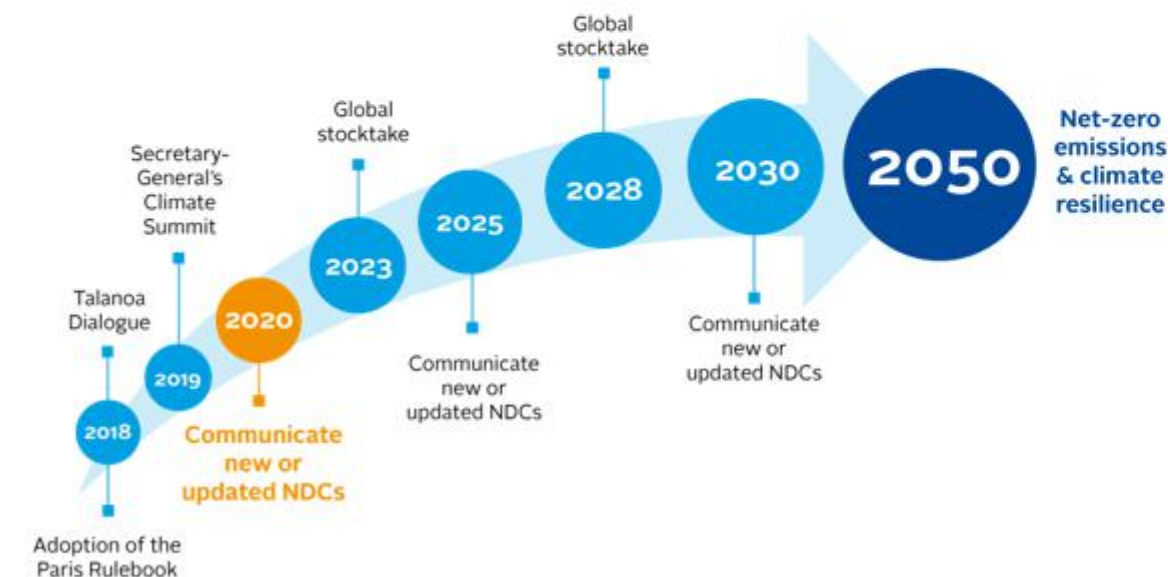
3<sup>rd</sup> Global BioEconomy Summit  
November 19, 2020



# COP26, Glasgow

## the moment of truth for the Paris Agreement – will new NDCs be more ambitious? #NetZero2050

### AMBITION MECHANISM IN THE PARIS AGREEMENT



Source: [wri.org/publication/NDC-enhancement-by-2030](https://www.wri.org/publication/NDC-enhancement-by-2030)

### Launch of the NDC Partnership's Climate Action Enhancement Package

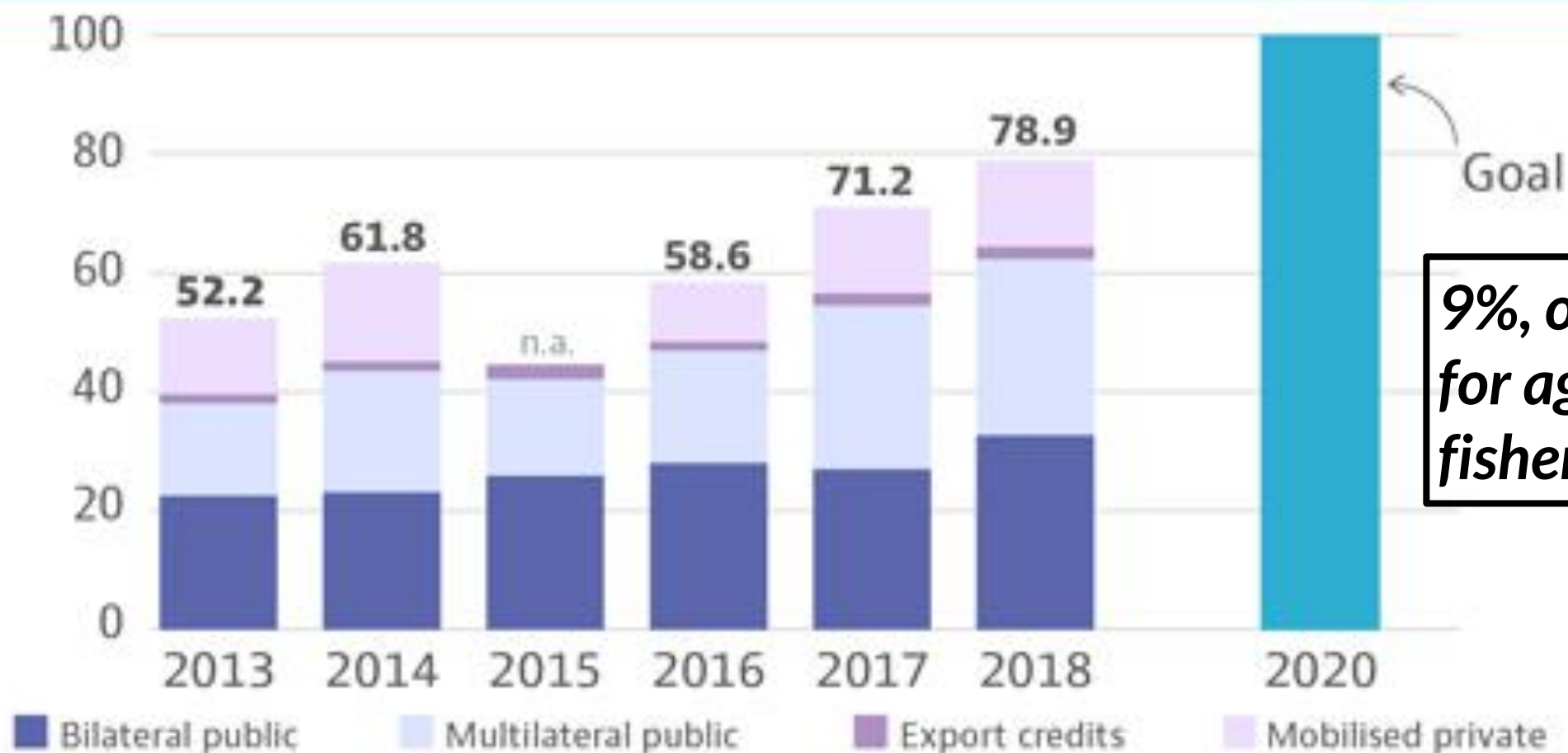
TARGETED, FAST-TRACK SUPPORT to UPDATE & IMPLEMENT NDCs





# Climate finance for developing countries is rising

Climate finance provided and mobilised by developed countries, in USD billions



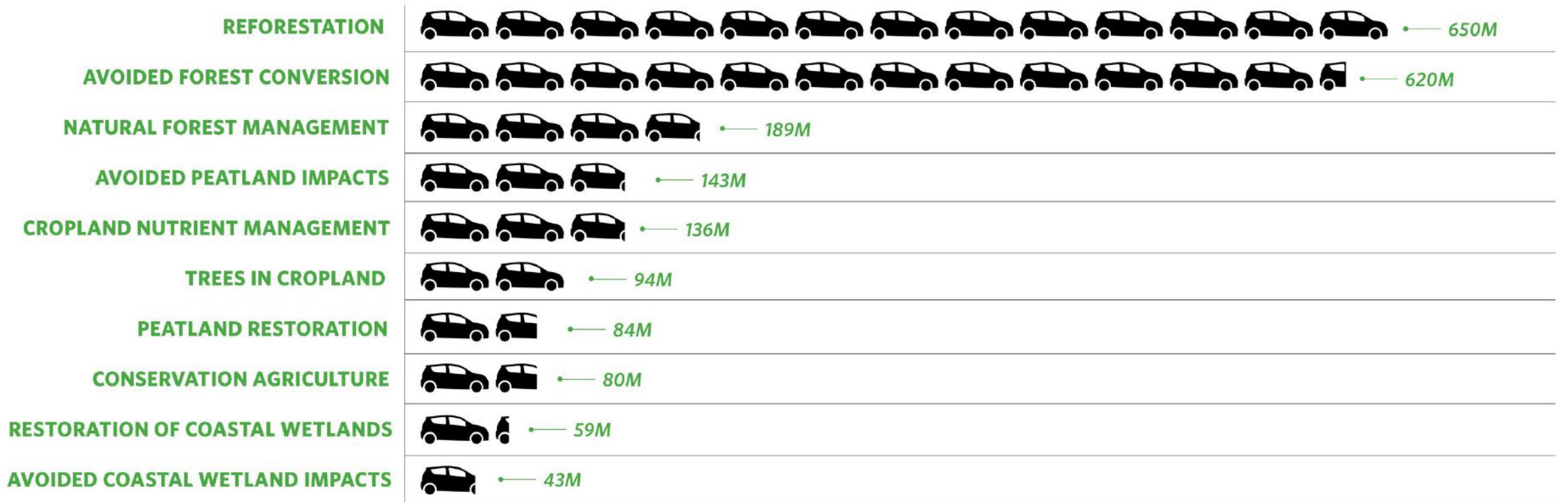
The gap in the private finance time series in 2015 is due to the implementation of enhanced measurement methodologies. As a result, private flows for 2016-18 cannot be directly compared with private flows for 2013-14.



# NATURAL CLIMATE SOLUTIONS

## TOP 10 MITIGATION PATHWAYS<sup>1</sup> WITH CO-BENEFITS

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



Global Mitigation Potential: Approximate Number of Cars Removed Each Year in Millions

 = 50M cars

<sup>1</sup>Cost-Effective

# UNDP Ecosystem-based Climate Adaptation Projects

\$504M, \$309M from the Green Climate Fund



Since 2008 and currently under implementation



1.3 million ha of mangrove and forests replanted



145,800 ha of marine and 2 million ha of land area protected

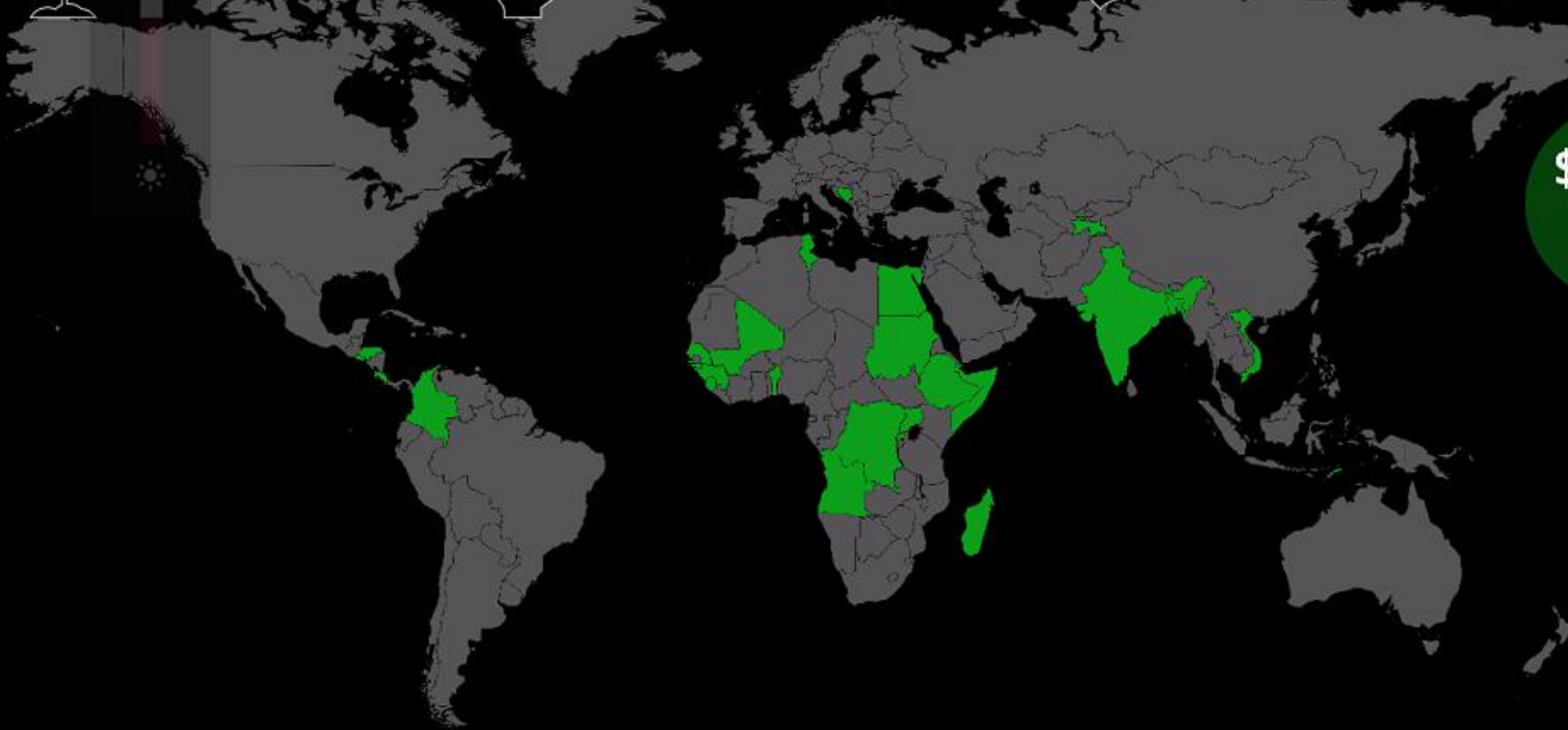


873,771 ha of agricultural land under improved management



16,000 km of coastline protected

31 COUNTRIES      20 LDCs      6 SIDS

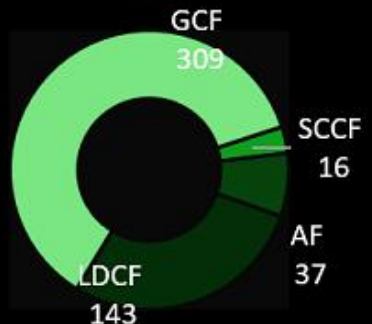


## Portfolio under implementation

**\$ 504**  
Million  
from VF

**\$ 1.4**  
Billion  
Co-financing

**39**  
Projects



Updated : October 2020





## The COVID19 Crisis: 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.
- Air pollution and obesity are aggravating factors for COVID-19
- Can we green the COVID recovery?
- How will the economic crisis affect green growth?
- Can we go back to our old lives?
- Can there be a Green New Deal?







# Achieving Green Growth & Climate Action Post COVID-19

GGGI Technical Report No. 13

*Can we build back Better ?*

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**.

July 2020









## **ROK President Pledged NetZero 2050, Oct 28, 2020**

- The Republic of Korea revealed a 42.7 trillion won (\$35 billion) plan to ramp up its commitment to renewable energy and environmentally friendly infrastructure. (energy-efficient smart grids, renewable energy sources and clean vehicles)
- President Moon Jae-in announced a framework on July 14 to expand energy efficiency, boost low-carbon power sources and foster green industries amid an effort to triple renewable power output by 2025.
- The green power plans are part of President Moon's broader 160 trillion won "New Deal" program, one of his biggest economic initiatives since coming to power in 2017.

# Korea's Digital and Green New Deal announced July, 2020



Elements of Korean Digital and Green New Deal (total 550K jobs, KRW76 T)	Cost of Digital and Green components (KRW trillion)	Digital /green measure as share of digital/green component (%)
<i>Digital and Green New Deal are each about 25% of the total COVID-19 Recovery Package</i>		
<b>Digital New Deal – 3300,000 jobs</b> <ul style="list-style-type: none"> <li>• Data, network AI infra /ecosystem (222K jobs)</li> <li>• Digital inclusion (15K jobs)</li> <li>• Online systems (education, businesses) (28K jobs)</li> <li>• Digitizing public infra (65K jobs)</li> </ul>	13.4	100%
	6.4	48%
	0.8	6%
	1.4	10%
	4.8	36%
<b>Green New Deal – 133,000 jobs</b> <ul style="list-style-type: none"> <li>• environmental infrastructure (89K jobs)</li> <li>• innovative green companies / green industry (11K jobs)</li> <li>• residential energy efficiency (33K jobs)</li> </ul>	12.9	100%
	5.8	45%
	1.7	13%
	5.4	42%



**GGGI's 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

Cost in USD  
(Million)

Cost Share  
in %



**Green physical & digital infrastructure**  
**16,800 jobs**

- Build solar and wind energy assets
- Energy storage, including green hydrogen
- Grid modernization
- Digital network and AI infrastructure
- Sustainable mobility
- Green urban infra – bike lanes, waste recycling

**350**

**30%**



**Building Energy Efficiency renovations & retrofits**  
**14,400 jobs**

- Insulation
- Energy-efficient heating and cooling
- Domestic energy storage

**300**

**25%**



**Education and training**  
**2,400 jobs**

- Green job training
- Online education systems
- Online economy systems for the private sector

**50**

**5%**



**Natural capital investment**  
**187,500 jobs**

- Restoration carbon-rich habitats (forests, peatlands, mangroves)
- Climate-smart agriculture

**250**

**25%**



**Green technology R&D**  
**2,400 jobs** or Rural support schemes **37,500 jobs**

- Green technology R&D for emerging economies
- Rural support schemes such as employment-based social assistance programs for developing economies

**50**

**5%**



# Colombian Bioeconomy Strategy 2020-2030

## Technical Background



El futuro  
es de todos

DNP  
Departamento  
Nacional de Planeación





# Colombian Bioeconomy in figures

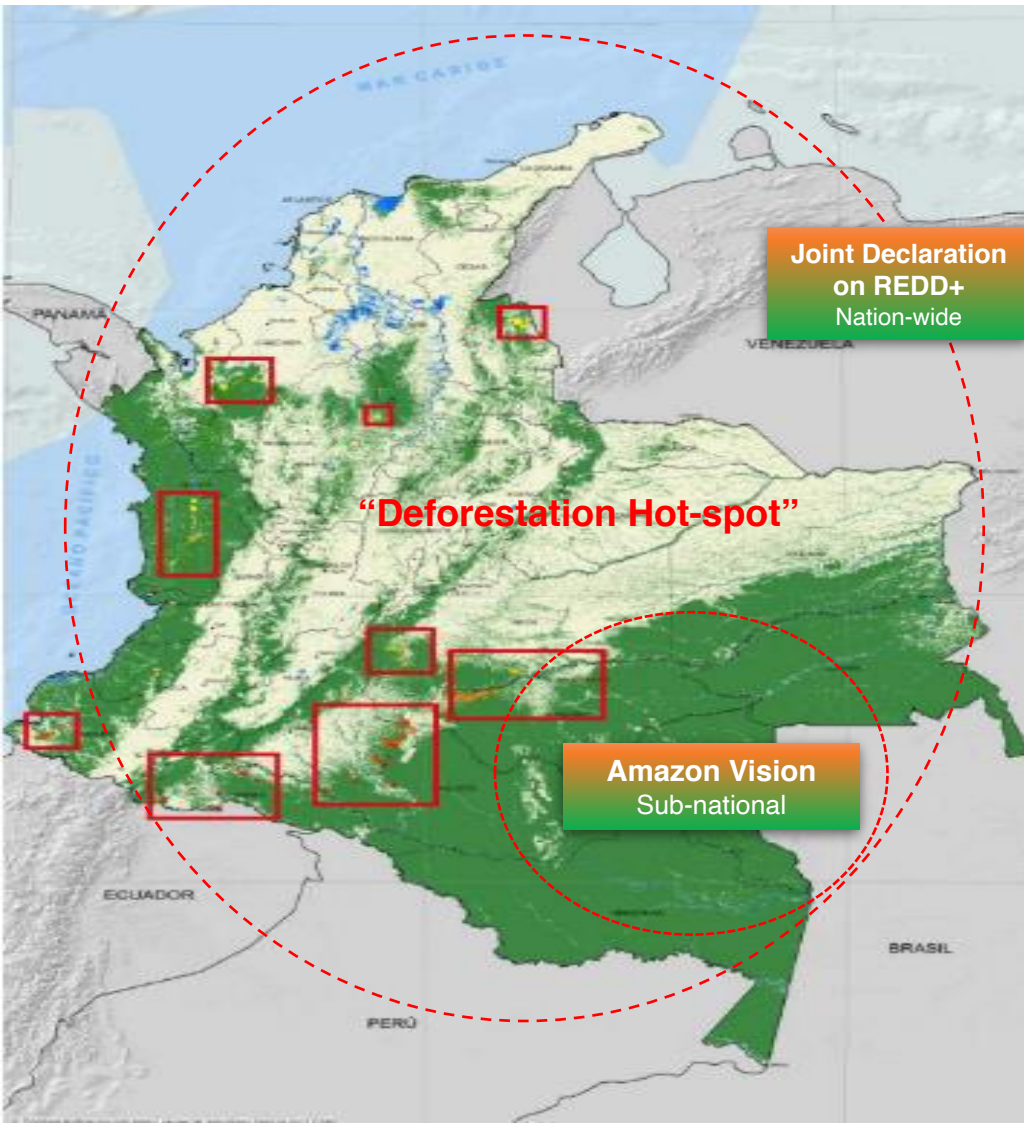


The bioeconomy by **2030** will contribute to more profitable, competitive, **sustainable** and resilient value chains based on **science, technology and innovation**.

The BE's contribution will triple to achieve a **10% of GDP** and will create around **3.1 million jobs**.

The BE will avoid the emission of **680,215 tons CO<sub>2</sub> / year of GHG** waste recovery.

# Colombia – Accelerated Amazon Vision and Joint Declaration on REDD+ with int’l partners



## Amazon Vision Program – up to USD 125M over 5 years

### Subnational Results-Based Payments Program

- Amazon region: **45.8M ha** (size of Germany), 40% territory of country, 67% of forest totaling 39M ha, with **high-level biodiversity**, more than 50 indigenous group, with 1.2M population
- **5 strategic interventions**: forest governance; sustainable sectoral dev't; agro-environment; indigenous people; enabling conditions (i.e. forest carbon accounting system)
- **Impact**: e.g. USD 12M invested in Agro-environment pillar, 2,707 families benefited; 234,633 ha under conservation pacts, which preserve natural species.

## Joint Declaration on REDD+ & Sustainable Rural Dev't - Up to USD 178M by 2020, plus USD 250M (2020-2025)

### Nationwide Results-Based Payments Program

- Modality 1 (Policy milestones) & Modality 2 (Result-based payment). USD \$15M disbursed in 2017 by Norway to Sustainable Colombia Fund
- On April 10, 2018, Norway committed additional USD 250M, building on current achievements



# [Philippines] Local Micro Businesses and Jobs in the midst of COVID-19



entrepreneurship  
Oriental-Mindoro

MSMEs  
capital-allocation  
business-skills  
capex  
investment  
employment

growth-focused



- **The issue.** Constant cycle of poverty for farmers in Oriental Mindoro, exacerbated by the increased frequency and severity of typhoons
- **Our thesis.** Fostering the growth of select **agripreneurs** – adding to the conventional support to a large number of farmers – will result in increased income, employment, and resilience to climate change in the province
- **Our approach.** Provide **financing and technical assistance** to a small number of competent agripreneurs, with support from lead firms in the Philippines (and Republic of Korea)



e.g. Agri cooperatives require to have PP&E support to meet the market standard (i.e. certification of their processed agri-products which enables them to be sold in a formal market)

e.g. Oriental Mindoro is known as national “calamansi king” (as producer, approx. 60% of national totla), but very little processing is done within Oriental Mindoro – less than 1% of total processed products (0.174 tons)

# [Philippines] Strengthening the Entire Value Chain to Transform the Sector

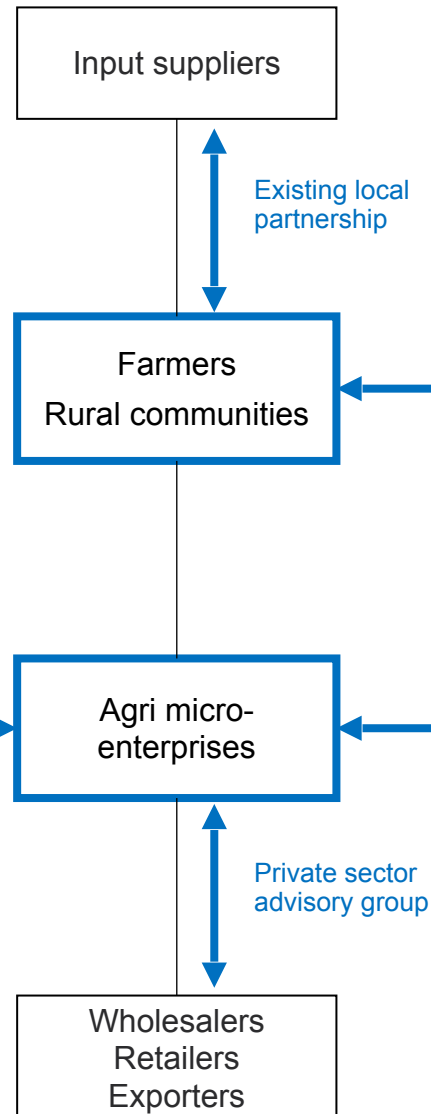
A **value chain approach** to achieving climate resilient and inclusive green growth for poor rural communities.



## Component 2: Investment and technical assistance to agri micro-enterprises

Investment and technical assistance to address the financing gap among agri micro-enterprises. The improved buildings, processing equipment, and the Provincial Agricultural Center results in:

- Increased revenue for agri micro-enterprises
- Increased income for farmers
- Growth of entrepreneurship and agri processing sector in Oriental Mindoro



## Component 1: Data management and Policy Development

Climate Vulnerability and Risk Information System (CVRIS) is established to address the information gap. PGOM will use CVRIS to collect climate and socioeconomic data that will inform relevant policy decisions (e.g. crop insurance, infrastructure support):

- Evidence-based planning by government officials
- Farmers making better decisions and benefitting from increased yield and income
- Agri micro-enterprises with stable supply of crops
- Reduced economic damage from extreme weather events

## Component 3: Capacity Development

Capacity building to address the knowledge / experience gap among project beneficiaries. This results in:

- Effective utilization of CVRIS by PGOM
- Effective utilization of the Provincial Agricultural Center by farmers and agri micro-enterprises
- Improved understanding of climate forecasts by farmers
- Business training for agri micro-enterprises



# Solar Irrigation and Climate Smart Agriculture in Senegal River Valley

- **Self-sufficiency in rice:** Emerging Senegal Plan and post Covid19;
- Rice farming dependance on **expensive fossil fuels** for irrigation and its **vulnerability to climate change**.

When implemented, up to:

- 21 pumping stations could be switched from grid powered irrigation pumps to solar power
- 3000+ farmers could receive CSA training
- 350+ could receive cash-for work for CSA in 1,800 ha of irrigated land
- 5500+ farmers could have improved incomes from reduced costs
- 6000+ direct jobs could be created, with potential to create many times of indirect and induced jobs
- 27,000 tCO<sub>2</sub> emissions could be avoided

## Senegal River Valley

- 45,000 rice farming households
- 87% of Senegal's national rice production





# Support Climate Smart Agriculture in Kiribati

- 30 % of imports were costly food incl. fresh food such as fruits and vegetables
- 45 % of household income spent on food
- 69 % of deaths due to non-communicable diseases like diabetes
- 54 % youth unemployment

When implemented, up to:

- ✓ 20 schools could receive CSA set-up to grow nutritious vegetables in school gardens
- ✓ 6000+ students could receive awareness training
- ✓ 55 local micro agri-businesses could be supported
- ✓ 11000+ could benefit from food security and healthy local vegetables
- ✓ Reduced import and household costs, new earnings and jobs, enhanced climate resilience



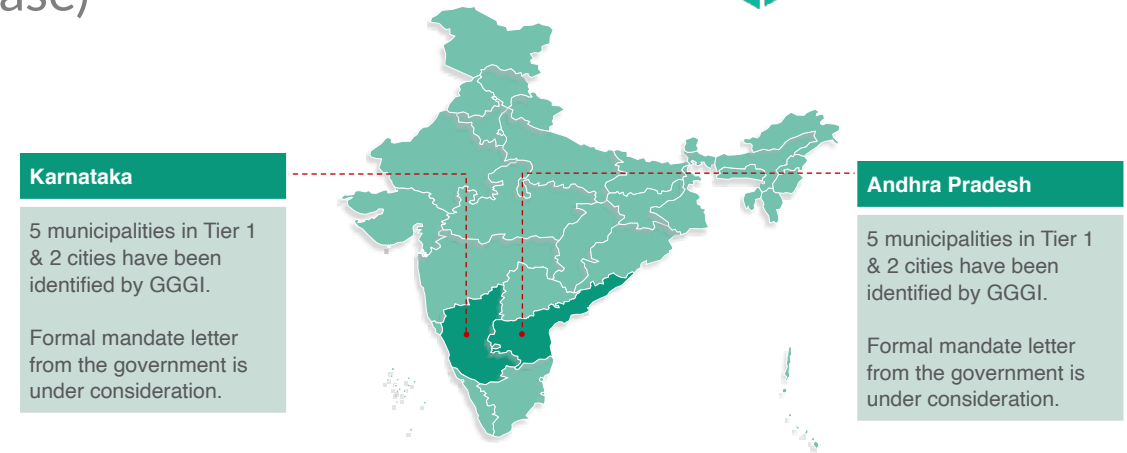
# India : Organic Waste to Bio-CNG

## Investment Overview (Readiness : Origination Phase)

- The proposed investment aims at establishing high technology bio-methanation facilities in 10 Tier 1 & 2 cities of India, where organic waste from vegetable & fruit market is converted to high grade natural gas.
- The total investment is estimated at US\$ 11 million, of which the sponsor's equity commitment is US\$ 2.6 million. The local financial institutions will provide the remainder of the debt financing required.

### Key Investment Highlights

- Project to be implemented under PPP structure (BOOT model) between the government and the project sponsor.
- Standardized plant design based on commercially proven Bio-CNG production process. Useful life is 20 years.
- Favorable long term bulk supply of segregated organic waste from the respective municipal corporation.
- Attractive Bio-CNG off-take policy by the Govt. of India guaranteeing price certainty for first 3 years
- Capital subsidy from Govt. of India – up to 20% of project cost.



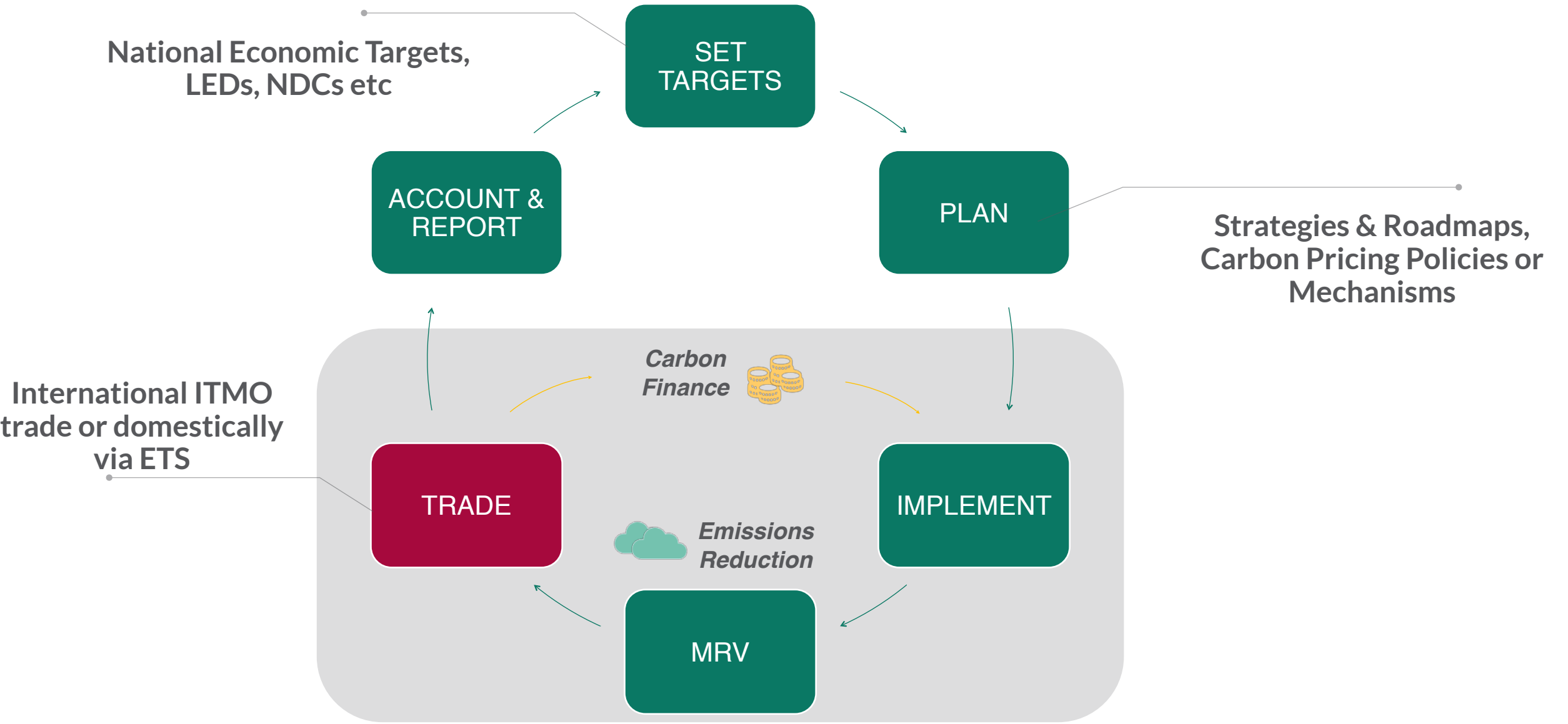
### Project Characteristics

Location	10 Municipalities in Tier 1 & 2 cities of the states of Karnataka & Andhra Pradesh
Total Plant Capacity ( aggregate)	450 Tonnes per day of Vegetable & Fruit market organic Waste
Bio-CNG : Production (aggregate)	18 Tonnes per Day
Bio-Fertilizer : Production (aggregate)	6 Tonnes / Day
Investment Metrics (US\$ Basis)	
• Project IRR	14.5 %
• Simple Payback	7 years

All figures in US\$ is based on a FX conversion rate of US\$ 1 = INR 70

Key Investment metrics is calculated based on the assumption that the INR depreciates annually against the US\$ at the CPI differential rate of 4% p.a.

# Climate action and Carbon finance





## Green Climate Fund approves USD100M for Indonesia for reduced deforestation (B26, August 2020)

Indonesia, with its proposal titled “REDD+ Results-Based Payment (RBP) for the period 2014-2016”, will receive GCF funding worth USD103.8 million that will be managed by the Environmental Fund Management Agency.

The REDD+ RBP from GCF pilot program began in 2017 and will take place until 2022. Indonesia is the fifth country to successfully access this pilot program, worth a total of USD500 million (after Paraguay, Chile, Ecuador, and Brazil).

Currently, Indonesia uses the average annual emissions of the land sector as baseline calculation, in line with the Guidelines for Land Use published by the Intergovernmental Panel on Climate Change (IPCC).



# GGGI Green Growth Index



## Efficient and sustainable resource use

- Efficient and sustainable energy
- Efficient and sustainable water use
- Sustainable land use
- Material use efficiency

## Green economic opportunities

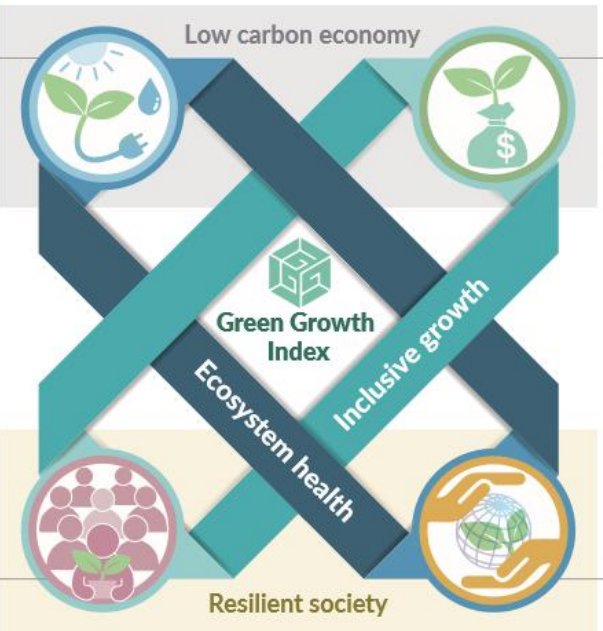
- Green investment
- Green trade
- Green employment
- Green innovation

- Access to basic services and resources
- Gender balance
- Social equity
- Social protection

## Social inclusion

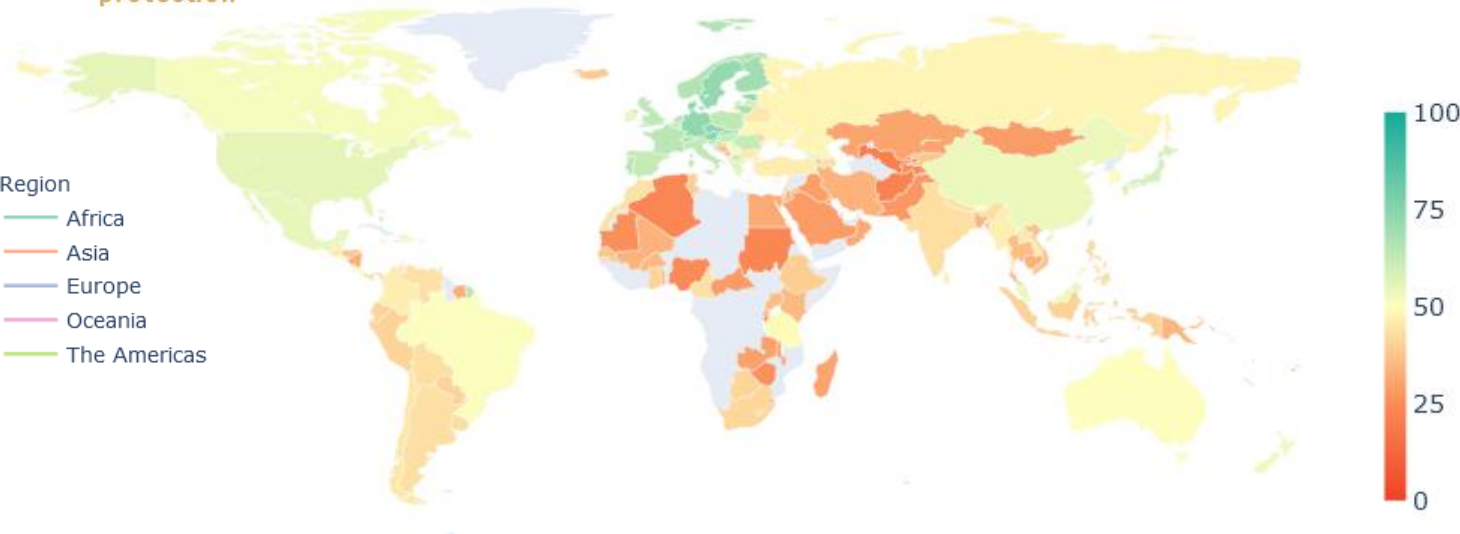
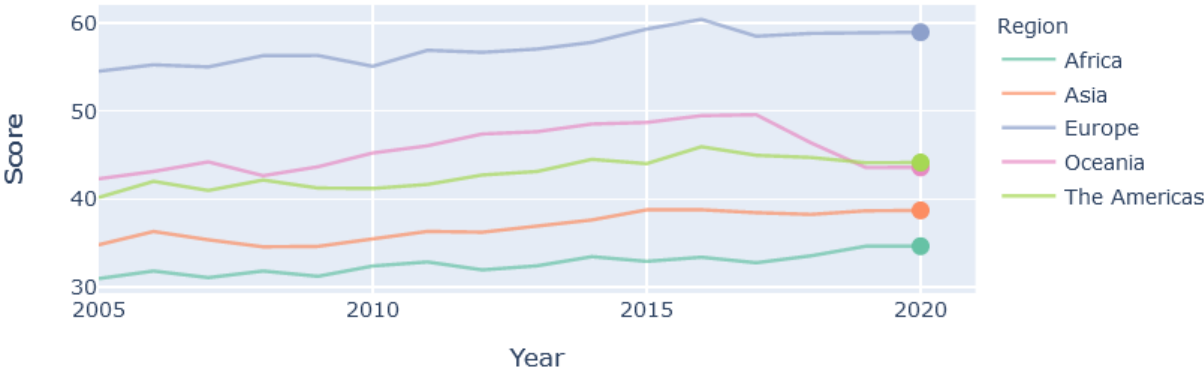
- Environmental quality
- GHG emission reductions
- Biodiversity and ecosystem protection
- Cultural and social value

## Natural capital protection



**Green Growth Index** measures country performance in achieving sustainability targets (i.e. Sustainable Development Goals, Paris Climate Agreement, and Aichi Biodiversity Targets) for four green growth dimensions: efficient and sustainable resource use, natural capital protection, green economic opportunities and social inclusion.

The 2020 Green Growth Index covers 165 countries. Country ranks 1<sup>st</sup> in 2020 with a score of \_\_\_\_.



# GGGI Green Growth Index



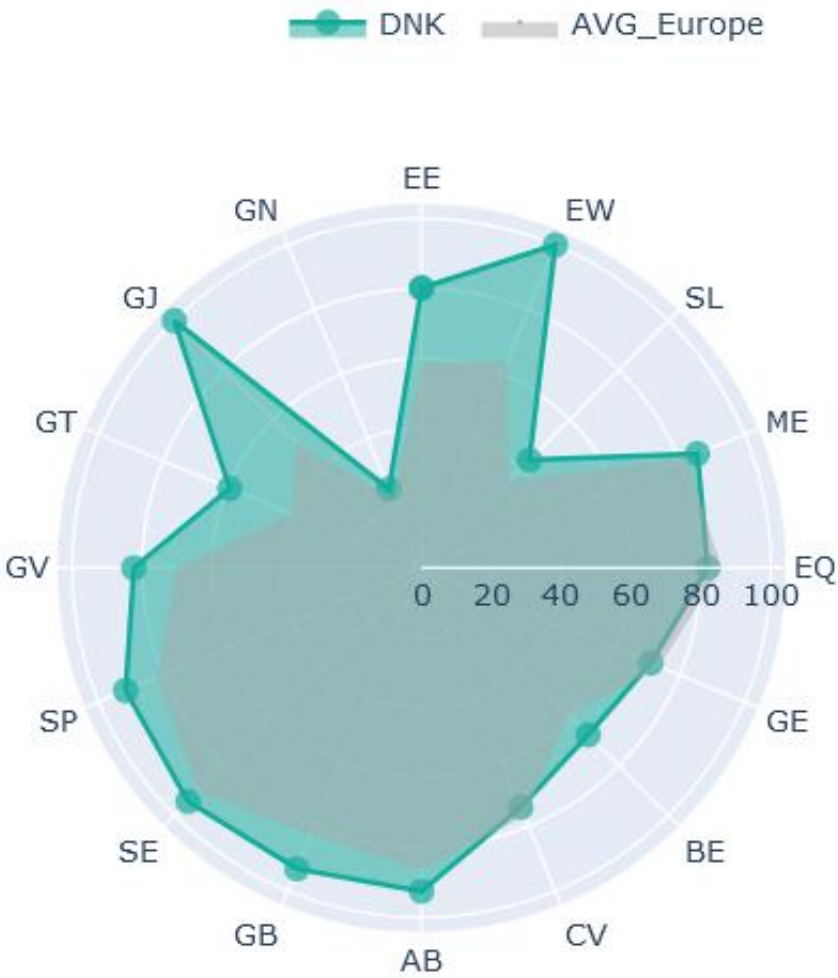
## Top performing country in 2020: .....

An Index of 100 implies that the sustainability targets have been achieved. The top performing country has an average score of only about 75, indicating still significant gap in green growth.

There is huge opportunities for countries across regions to improve green growth performance, particularly in creating green economic opportunities such as green employment and trade and in efficient and sustainable energy and land use.

2020 Dimensions by Region

Region	ESRU	GEO	NCP	SI
Africa	41.3	16.46	61.36	44.15
Asia	31.77	23.13	56.25	66.49
Europe	55.01	39.13	71.1	84.87
Oceania	61.87	18.16	61.94	53.99
The Americas	42.21	21.33	64.71	69.86

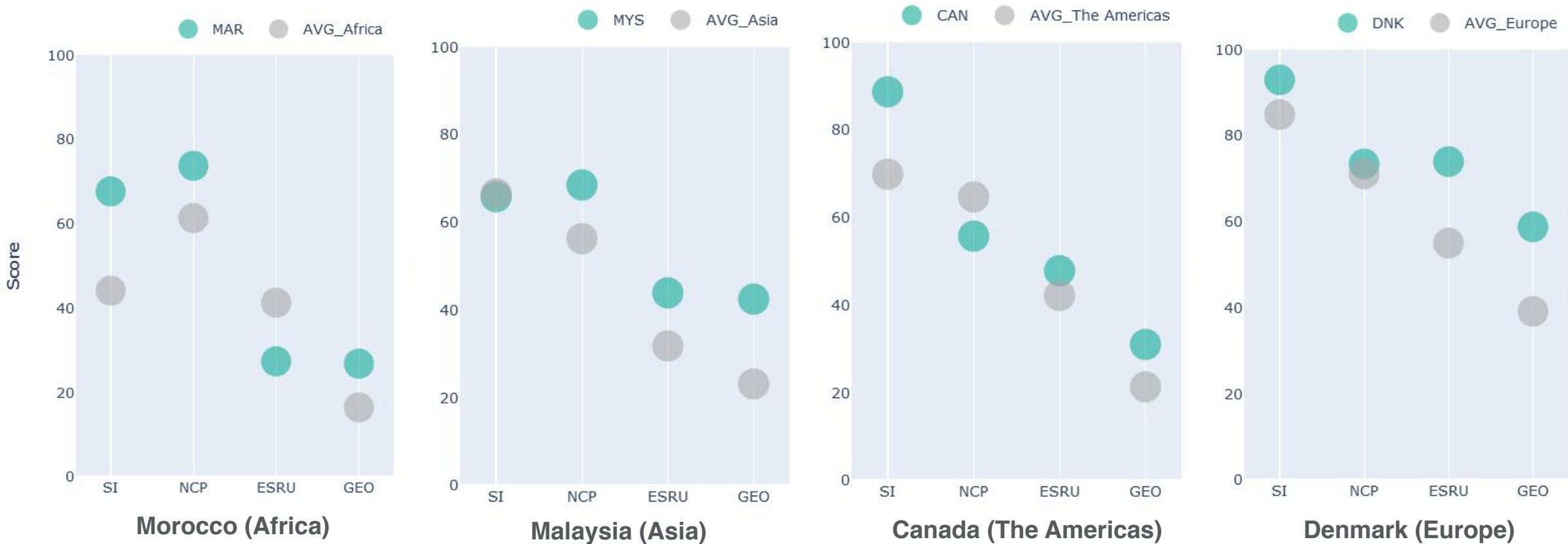




# GGGI Green Growth Index



## Top performing countries by region



Best performance vary across regions, with Canada and Denmark having highest scores in social inclusion (SI), while Morocco and Malaysia in natural capital protection (NCP). Most countries perform well above average scores in their respective regions, except for Morocco as far as efficient and sustainable resource (ESRU) use is concerned. Common among top performing countries is the lowest scores in green economic opportunities (GEO).  
(Note: Oceania does not fit anymore)

# Conclusions



1. *Climate Finance* is large and growing – share of “agriculture” is modest, but climate smart agriculture is critical for least developed countries – and there is growing interest in Nature Based Solutions.
2. *Greening COVID-Recovery* - the \$10-12T in stimulus funding – is a critical opportunity for Climate Action – and for Bioeconomy – focus on Green Jobs & Climate Action
3. *Colombia’s BioEconomy Strategy*, for example, targets 3M jobs and 700K tons of GHG emission reduction annually.
4. *Carbon pricing / trading*, either voluntary / national or Art6 (in future) offers opportunities for Bioeconomy projects – avoiding emissions from waste, deforestation or landscape degradation, or sequestering carbon through reforestation / rehabilitation
5. *GGGI’s Green Growth Index 2020* shows all countries still have a way to go to green their economy – and Bioeconomy is an excellent opportunity for most countries!

# Thank You

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