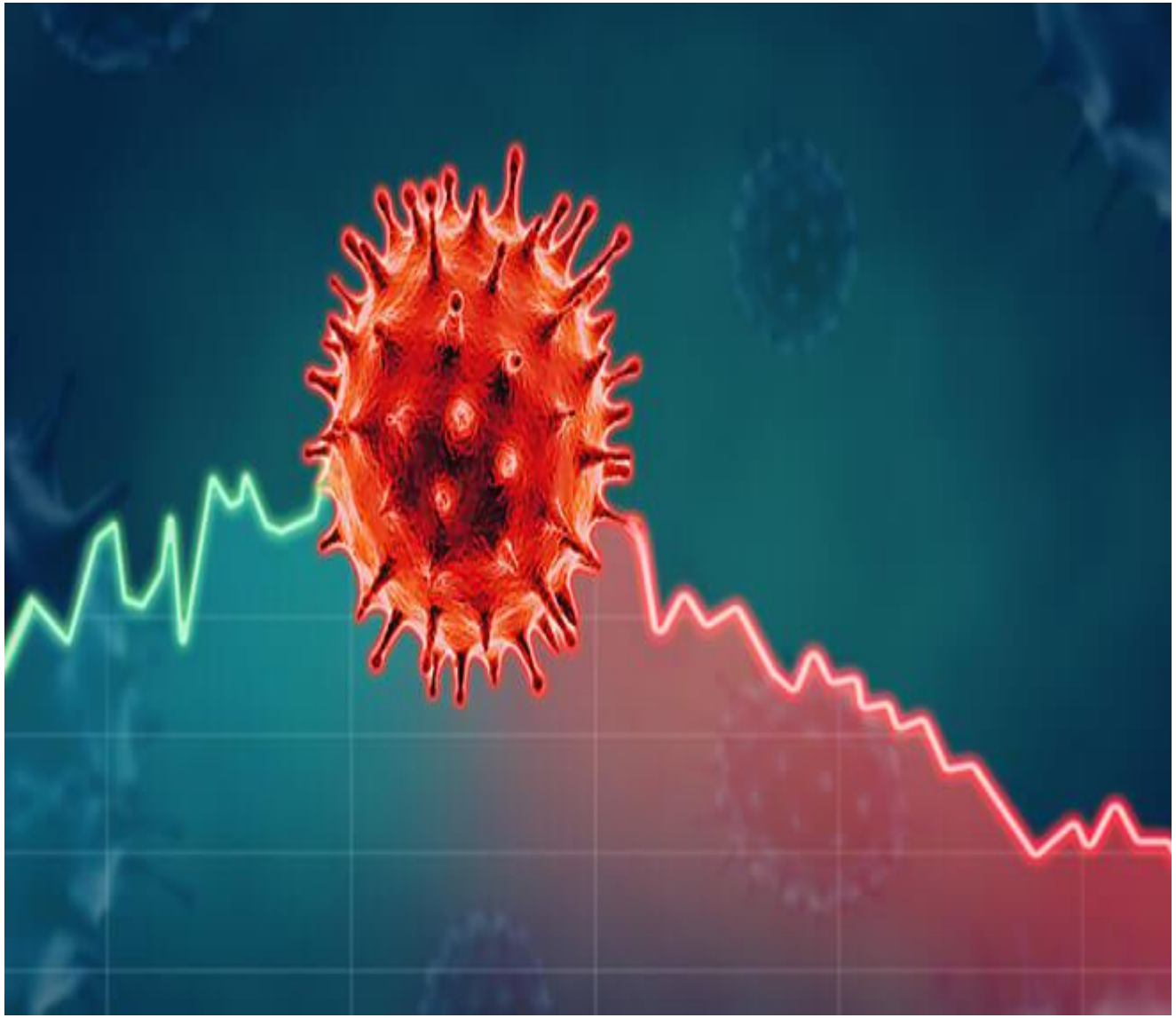
Private Sector Engagement to Tackle Climate Change

Dr. Frank Rijsberman, GGGI Director-General

Content

- We are in the midst of an unprecedented ***sustainability crisis***
- Unpacking the crisis pre- and post- ***COVID19***
- The economic crisis following the public health crisis
- Green Growth opportunities
- Private Sector & Government



Unpacking the sustainability crisis:

- Climate Change
- Mass species extinction crisis
- Deforestation
- Plastic ocean – dead zones
- Chronic diseases
- Air pollution
- *Infectious disease: COVID-19*

Climate Change:
heat waves, fires, cyclones, floods, droughts intensify

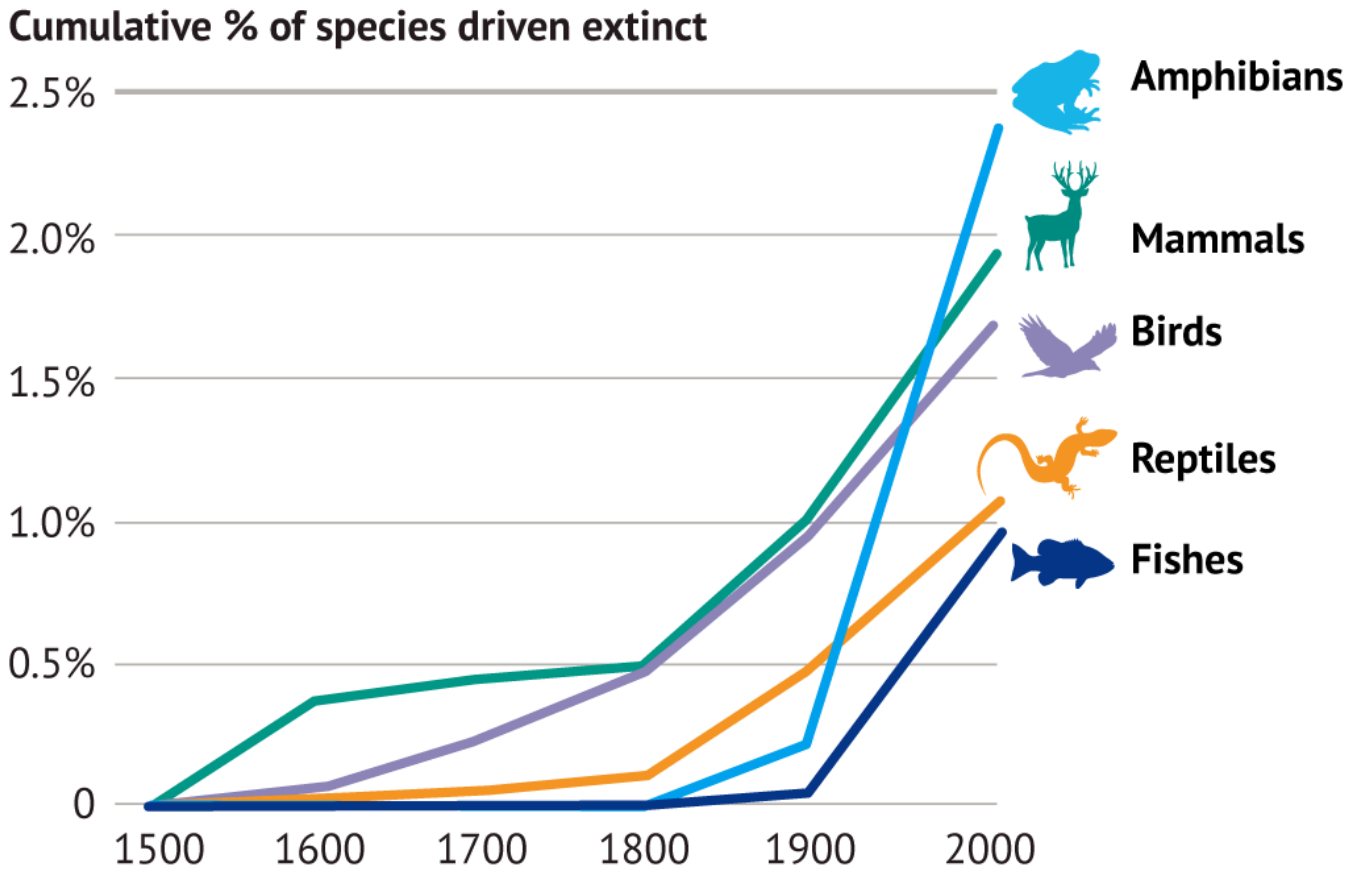
2019: Cyclone Pam, Mozambique
2020: Cyclone Harold, Vanuatu

2018-199: Record heatwaves in Korea, Europe

2019/20: Massive forest fires in Australia and intense droughts in Africa affecting millions of people

The Holocene or 6th mass species extinction

- Estimates range between 24 (MEA) and 150 (CBD) species lost every day.
- Extinction Rebellion protests climate change and linked fear of mass species extinction



Source: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), draft May 2019, Bonn

Global deforestation is rising

- Global tree cover loss has grown from 13 million hectares per year at the turn of the century, to nearly 28 million hectares per year today.
- “What really concerns those of us working on the role of forests in climate change is that global tree cover loss is increasing,” said Christopher Martius, managing director of CIFOR’s office in Bonn, Germany.

Fires burning on the South American continent 27 August 2019, Photo: NASA/FIRMS

Plastic pollution in the oceans

- 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

Great Pacific Garbage Patch

Source: UN Environment

Poor diets damaging children's health worldwide, warns UNICEF

Poor diets are now the #1 cause of ill health globally, overtaking smoking, with 800 million hungry people, 2 billion malnourished people, 159 million stunted children and 2 billion people overweight or obese, causing rapid increases in diabetes in India and heart disease in China. Three quarters of all overweight children live in Africa and Asia.

The State of the World's Children 2019: Children, food and nutrition finds that at least 1 in 3 children under five – or over 200 million – is either undernourished or overweight. Almost 2 in 3 children between six months and two years of age are not fed food that supports their rapidly growing bodies and brains. This puts them at risk of poor brain development, weak learning, low immunity, increased infections and, in many cases, death.

Poverty, urbanization, climate change and poor eating choices driving unhealthy diets

Air Pollution in the Asia Pacific

- In the Republic of Korea, Air Pollution was declared a social disaster to be tackled through emergency laws.
- 92% of Asia and the Pacific's population – about 4 billion people – are exposed to levels of air pollution that pose a significant risk to their health.
- Blue skies are the top priority throughout Asia, from Mongolia to China to Bangkok – but blue skies will also help address the climate crisis.

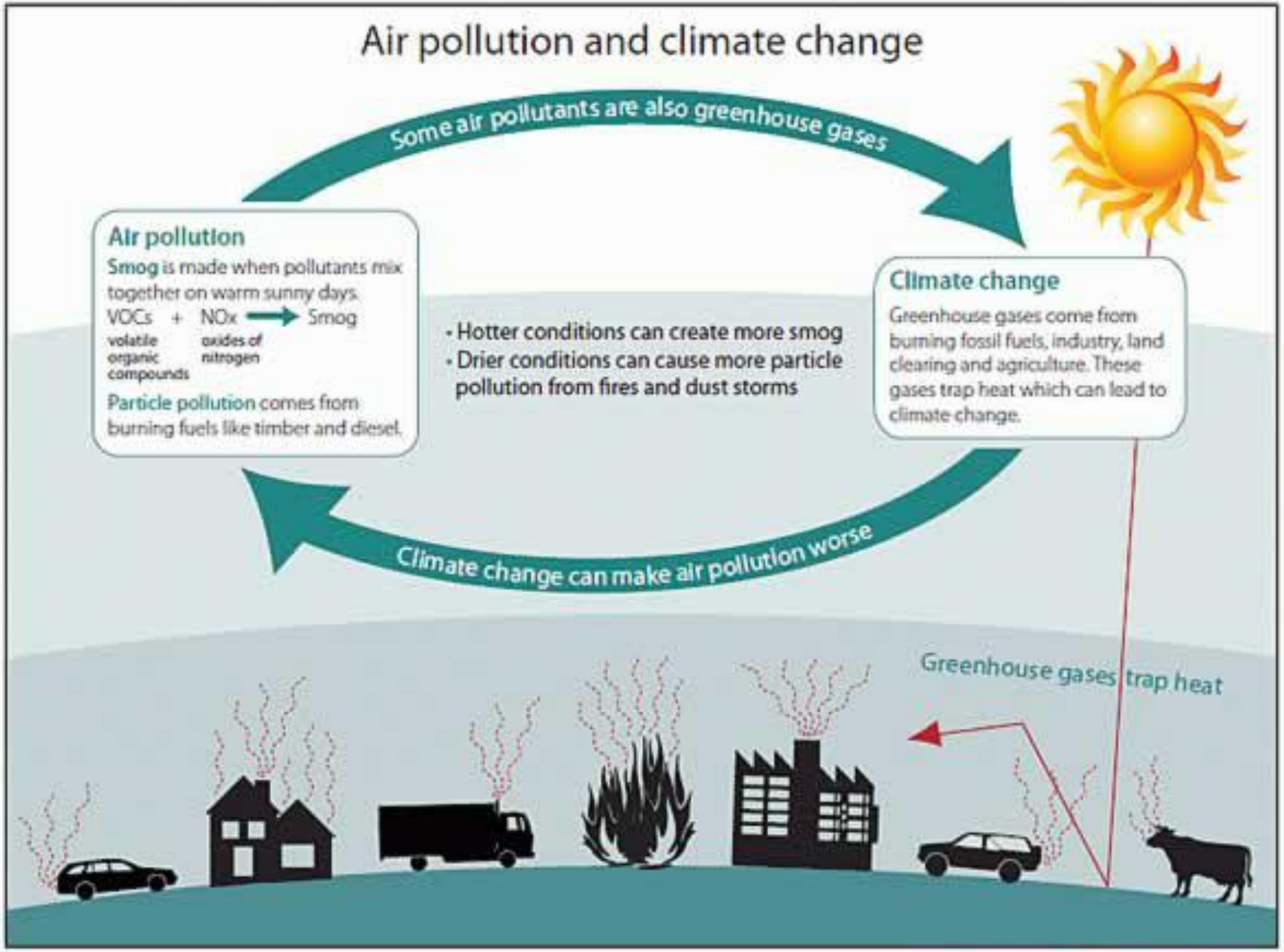
Statistics source: UN Environment

The Air Pollution Crisis

- Every year, an estimated 7 million people die from illnesses attributable to air pollution.
- Blue skies are the top throughout Asia, from Mongolia to China to Bangkok – but blue skies will also help address the climate crisis.
- Combating climate change and meeting the goals of the Paris Agreement could save around a million lives a year worldwide by 2050 solely through reductions in air pollution.

GGGI

Maintaining good air quality in the longer-term is inextricably linked to ambitious climate action



Adapted from State of the Environment NSW 2000

2019: Climate Change: the defining threat of our time

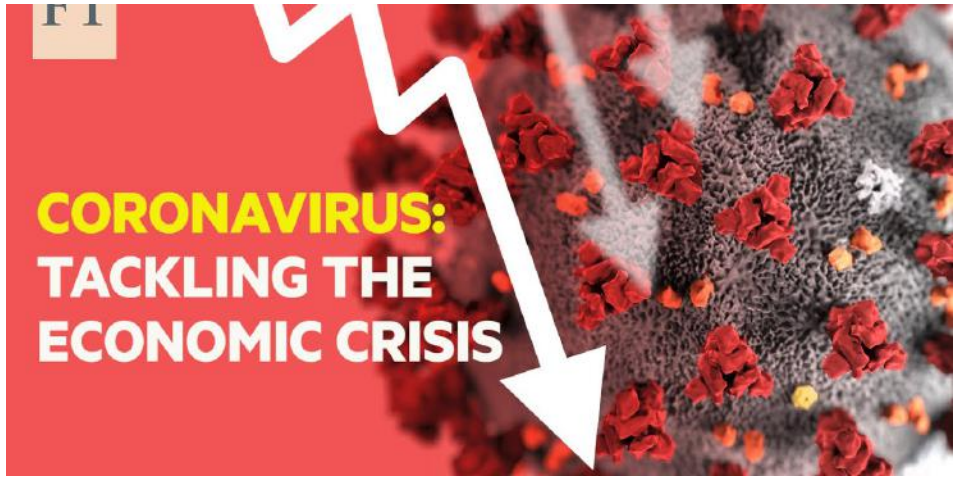
Glasgow COP26 in 2020: the moment of truth for the Paris Agreement as countries submit their new Nationally Determined Contributions – they need to be more solid and more ambitious

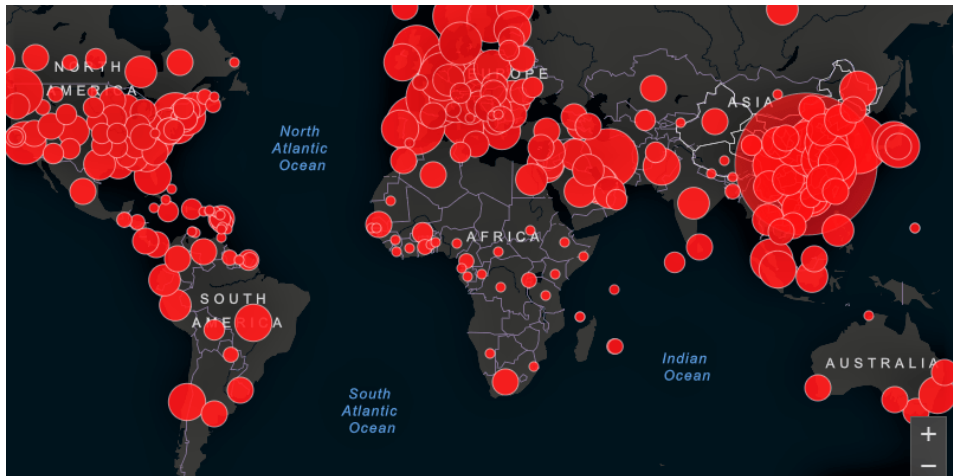
The COVID19-Crisis- what has changed?

- 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?

COVID and Economic Crisis

- Massive job losses everywhere
- Travel and tourism down 80-90%
- Korean export down 46%
- US low-wage unemployment as high as 40%
- Stimulus bills massively boost government debt and are unsustainable
- End of globalization?





COVID, Climate and the Private Sector

- Air pollution can cost companies trillions annually through reduced labor productivity and increased healthcare costs.
- The COVID-19 crisis and economic lockdown are affecting all of us.
- Circular economy, climate action, cutting emissions and addressing climate risk are no longer CSR but core company strategy.

Pollution costs the global economy $4.6 trillion per year, equivalent to 6.2% of global economic output.

Pollution is neglected by funding agencies worldwide.

What can be done?

The 1956 Clean Air Act, London, UK

- On December 4th, 1952, a thick fog, known as *the Great London Smog* covered London.
- Led to 4,000 deaths above the usual average.
- The first Clean Air Act was introduced in 1956 to control domestic sources of smoke pollution by introducing smokeless zones where only smokeless fuels could be used.

Source: http://www.air-quality.org.uk/

Results of the 1956 Clean Air Act?

- The smoke control areas helped to reduce domestic emissions
- Electric and gas usage increased
- The use of solid fuels decreased
- Relocation of power stations to more rural areas
- Continued decline in heavy industry

Source: http://www.air-quality.org.uk/

Disbelief in big cities as air pollution falls

Air quality in many cities is better than in decades

India Gate in New Delhi Pre & Post COVID Lockdown

WILDLIFE ROAM STREETS EMPTIED BY CORONAVIRUS

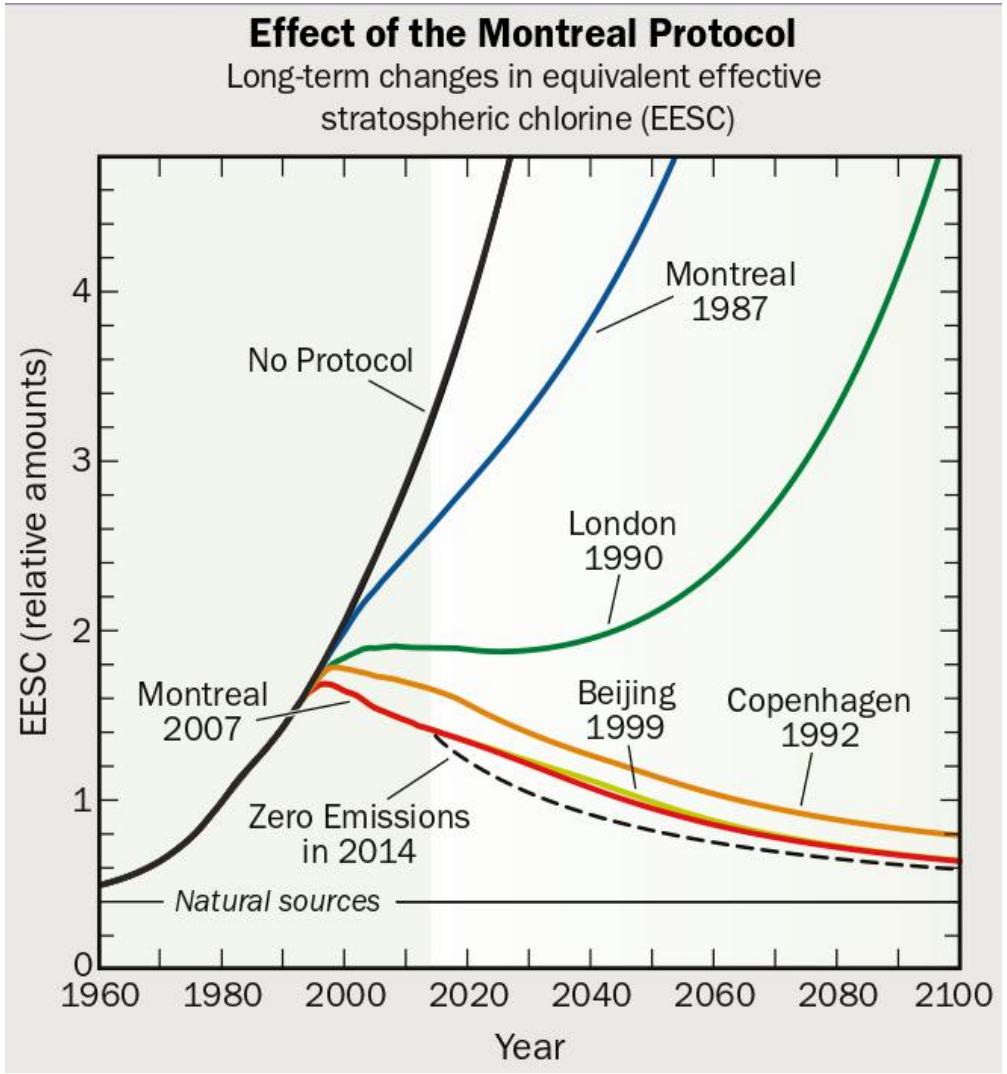
Cleaning up rivers such as the Rhine

- In 1986, a fire broke out in a production plant storage room at the pharmaceutical company Sandoz in the Swiss city of Basel. As a result, huge amounts of pesticides were released into the Upper Rhine, killing a multitude of fish and micro-organisms.
- Since then, investments in industrial and public water purification plants have amounted to 60 billion euros (over $75 billion), with local governments investing a yearly amount of one billion euros in water purification.
- International Commission for the Protection of the Rhine, Koblenz

source: http://news.nationalgeographic.com/news/2010/09/photogalleries/100921-toxic-foam-river-brazil-science-environment-pictures/

30 years old, the Montreal protocol saved the ozone layer

- The **Protocol** now has 197 countries participating and resulted in the phase-out of 99 percent of nearly 100 ozone-depleting chemicals. It's often considered the most **successful** international environmental treaty in history.



Drive for economic growth

The Quality of Economic Growth Really Matters:

Clear Need for "Green Growth"

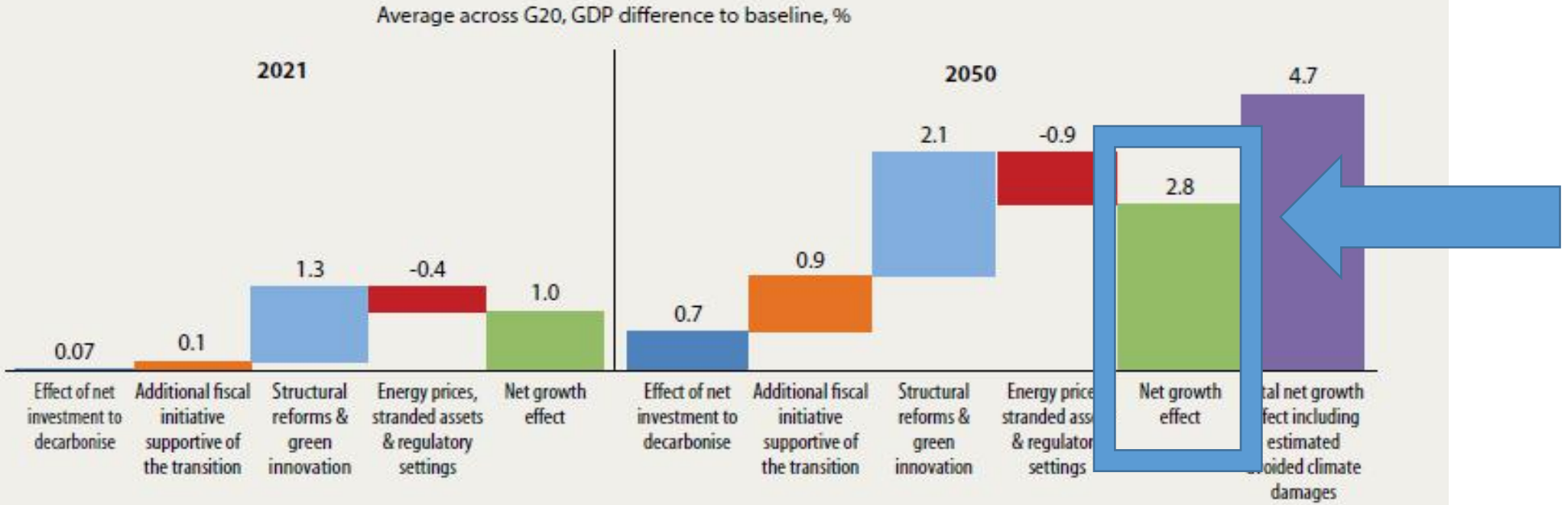
... a development approach that seeks to deliver economic growth that is both environmentally sustainable and socially inclusive.

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

Green growth approach brings positive economic growth effects in countries

Figure 1. **Positive growth effects for the G20 by combining climate action with economic reforms in a decisive transition (50% probability of achieving 2°C)***



(Source: OECD, 2017)

Collective "decisive transition" can increase the net growth effect by 2.8% on average across the G20 (when comparing a current policies trajectory to a pathway set to hold warming below 2 degree Celsius with a probability of 50%)

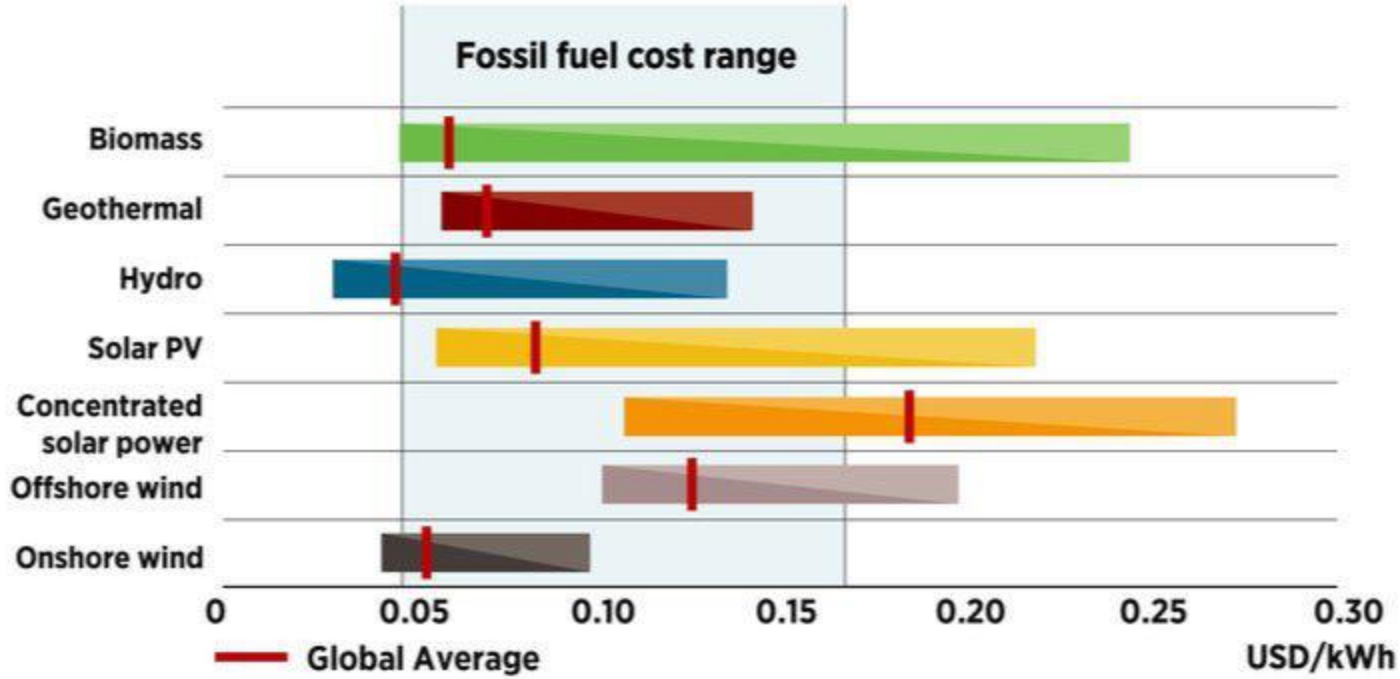
The green transition

What will it take?

Solutions: Renewable Energy

- Investment opportunity in renewable energy.
- Renewable energy is disrupting the energy market.
- Wind and solar energy, in many regions, are now cheaper than fossil fuels.
- Costs of renewable energy technologies, generally, continuing to fall.

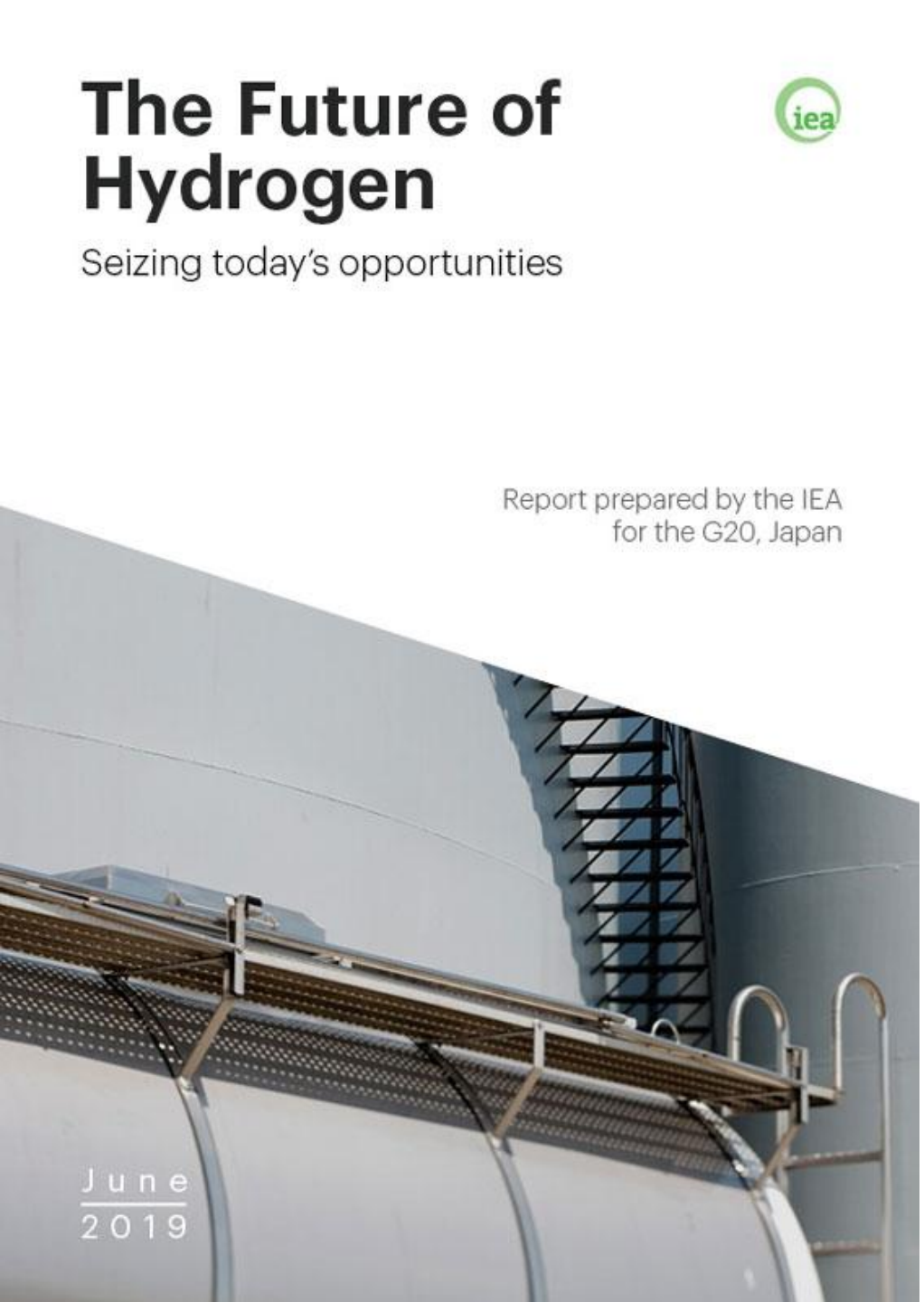
Today, the cost of electricity from renewables is cheaper or within the range of fossil fuels



Falling costs of energy storage

- Storage prices are falling quicker than originally anticipated , partially due to the increasing demand for electric vehicles (EVs).
- With lower prices, storage will be able to play an increasingly larger role in energy markets, such as replacing conventional power generators for reliability, providing power-quality services, and supporting renewables integration.

Source: McKinsey & Company

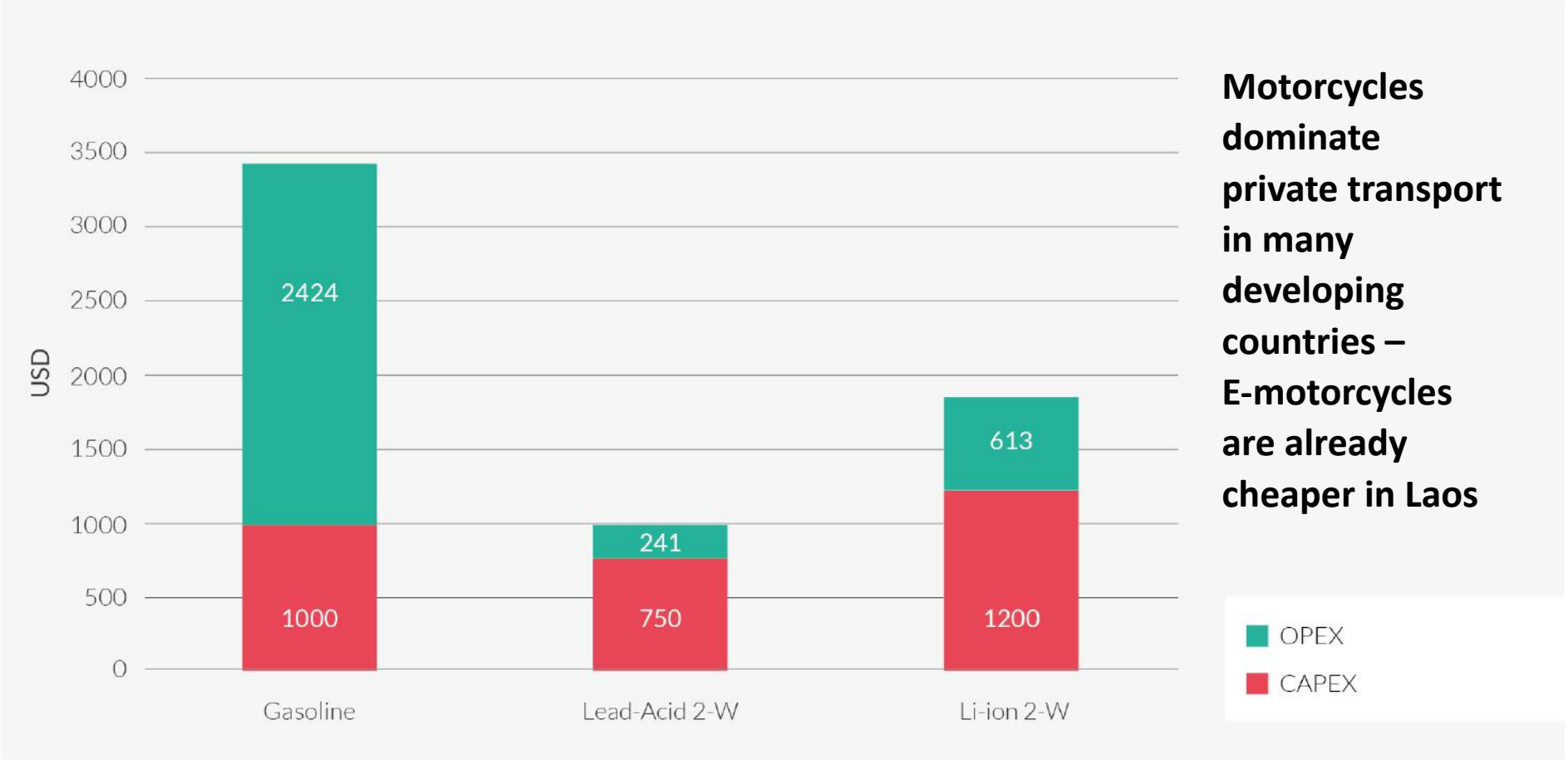


"Hydrogen is today enjoying unprecedented momentum. The world should not miss this unique chance to make hydrogen an **important part of our clean and secure energy future**."
Fatih Birol, Executive Director, IEA

- Dedicated electricity generation from renewables or nuclear power offers an alternative to the use of grid electricity for hydrogen production.
- With declining costs for renewable electricity, in particular from solar PV and wind, interest is growing in electrolytic hydrogen

Electric Mobility

Total costs of ownership of gasoline and electric motorcycles in Laos



Motorcycles dominate private transport in many developing countries – E-motorcycles are already cheaper in Laos

Source: GGGI Analysis

Smart cooking technology

- Around 3 billion people every day cook using open fires or rudimentary cookstoves fueled by coal or solid fuels, which hinders the health of the population, air quality, and environment.
- Research estimates that the adoption of advanced biomass cookstoves could have an impact equivalent to lowering CO2 emissions by approximately 25–50%.

Source: Global Alliance for Clean Cookstoves


Source: Global Environment Facility

Energy Efficiency: Green Buildings

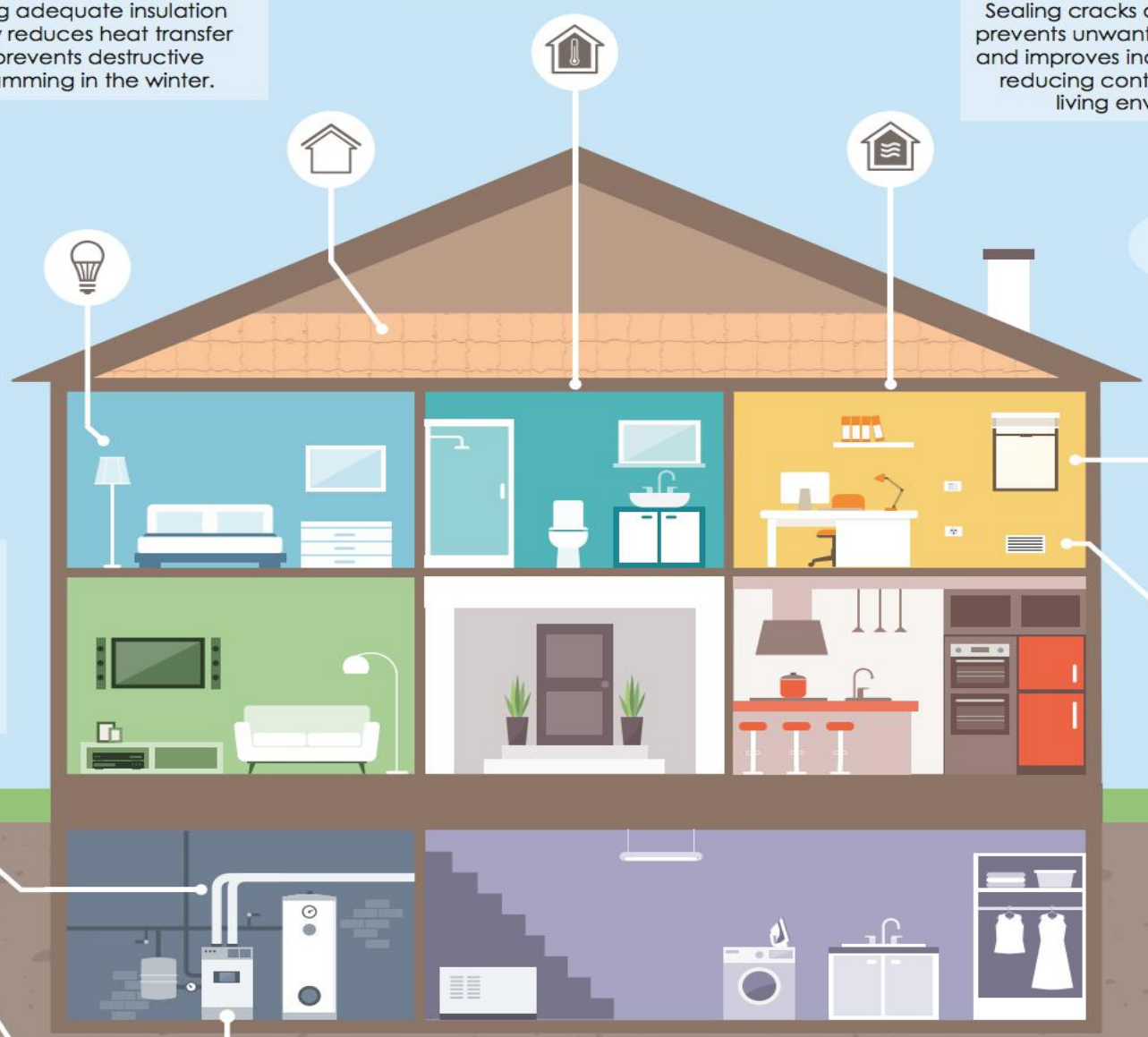
- Buildings are responsible for an estimated 32% of global energy use and almost 30% of total GHG emissions.
- Heating and cooling energy requirements can be lowered by 50-90% through retrofitted buildings.
- New, energy-efficient buildings, in many cases, use almost zero energy for heating and cooling.

THERMAL BARRIER
Installing adequate insulation on all sides of the home improves occupant comfort and reduces the heating and cooling load.

CEILING INSULATION
Installing adequate insulation properly reduces heat transfer and prevents destructive ice-damming in the winter.

AIR BARRIER
Sealing cracks and penetrations prevents unwanted air movement and improves indoor air quality by reducing contaminants in the living environment.

EFFICIENT LIGHTING
Installing LEDs or CFLs dramatically lowers electricity usage and reduces unwanted heat in the home.



EFFICIENT WINDOWS
It is critical that windows be well insulated and well-sealed to prevent unwanted heat transfer and moisture infiltration.

DUCT SEALING
Sealing all components of the HVAC system, and testing to verify, improves indoor air quality, system efficiency, and increases occupant comfort by ensuring air is evenly distributed to all rooms in the home.

MECHANICAL VENTILATION
Installing a dedicated exhaust, supply or balanced ventilation system improves indoor air quality by guaranteeing source-controlled fresh air is being supplied to the home.

HVAC SYSTEM SIZING
Properly sizing the HVAC system reduces capital costs, prolongs the life of the system, and improves system efficiency.

Created by

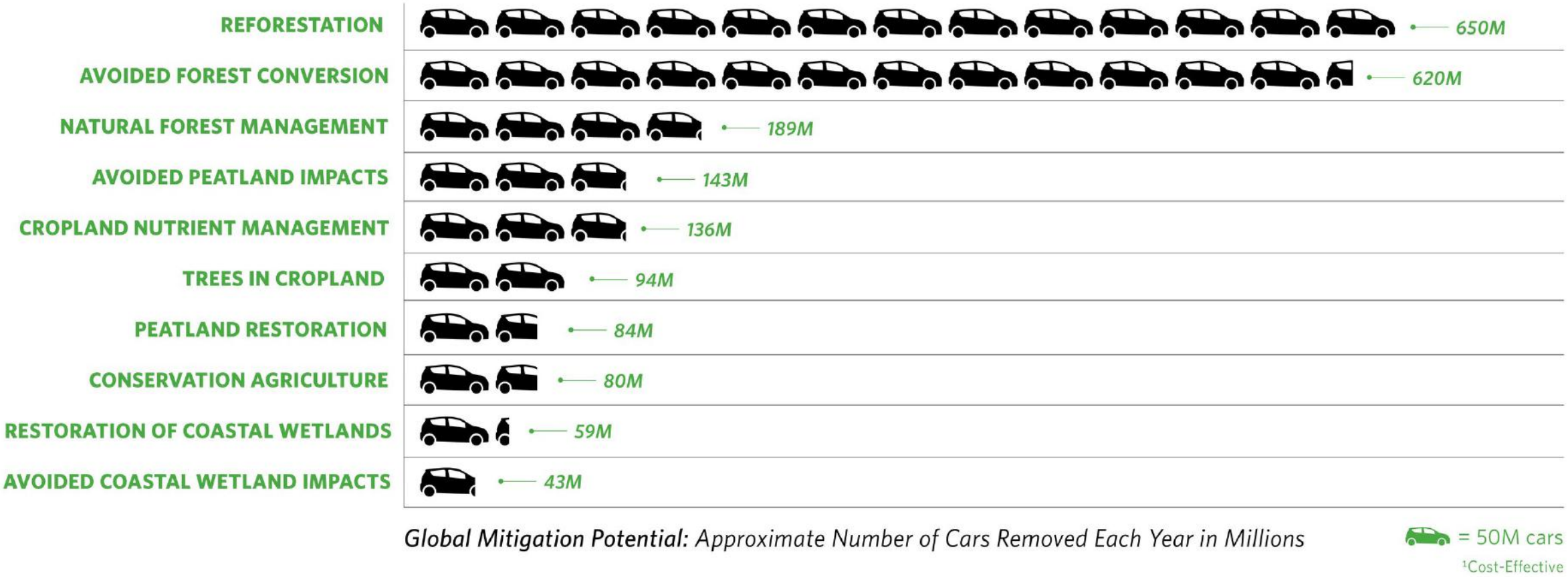
MEEA
MIDWEST ENERGY EFFICIENCY ALLIANCE

NATURAL CLIMATE SOLUTIONS

The Nature Conservancy

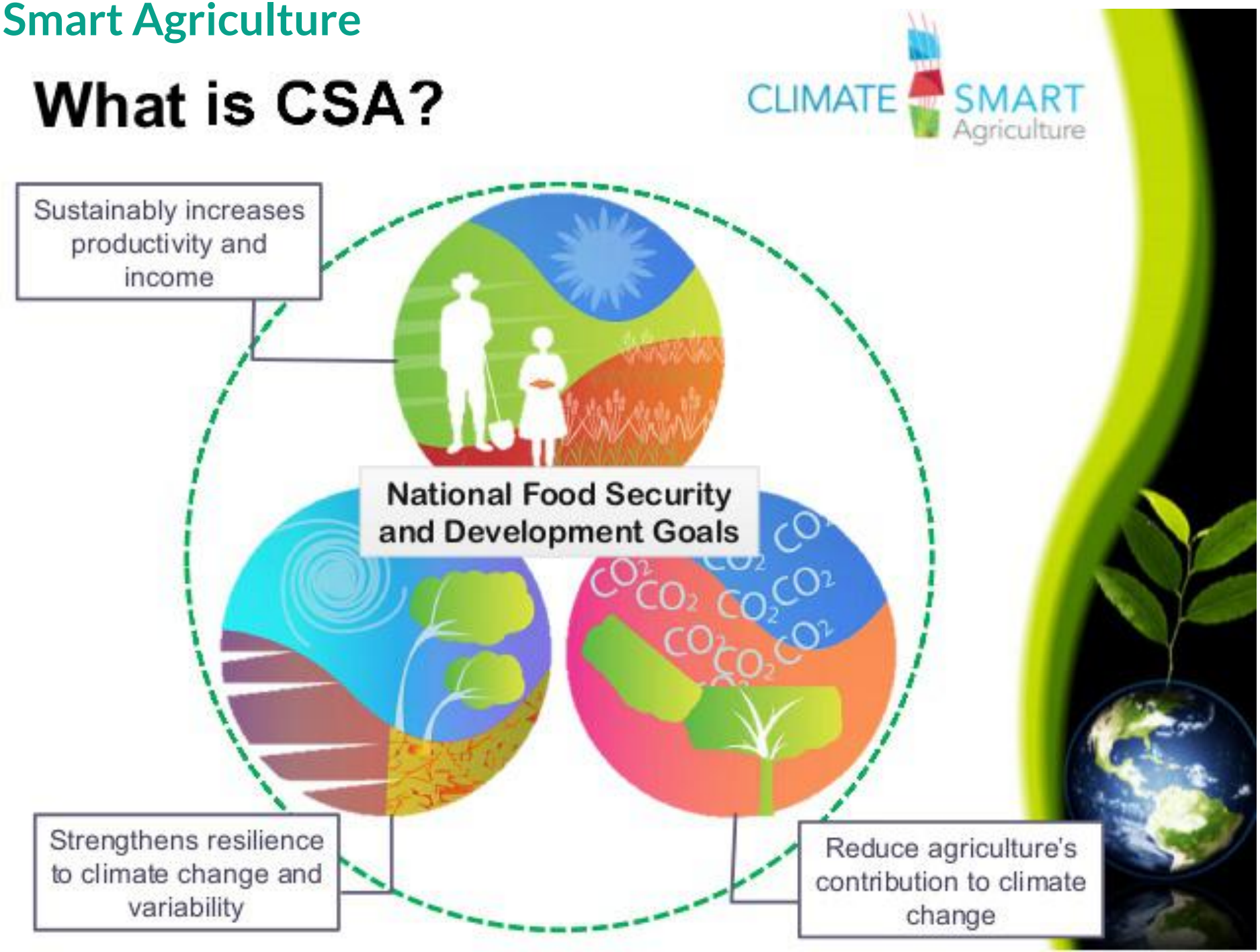
TOP 10 MITIGATION PATHWAYS[1] WITH CO-BENEFITS

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



Bronson W. Griscom el al., "Natural climate solutions," *PNAS* (2017). www.pnas.org/cgi/doi/10.1073/pnas.1710465114

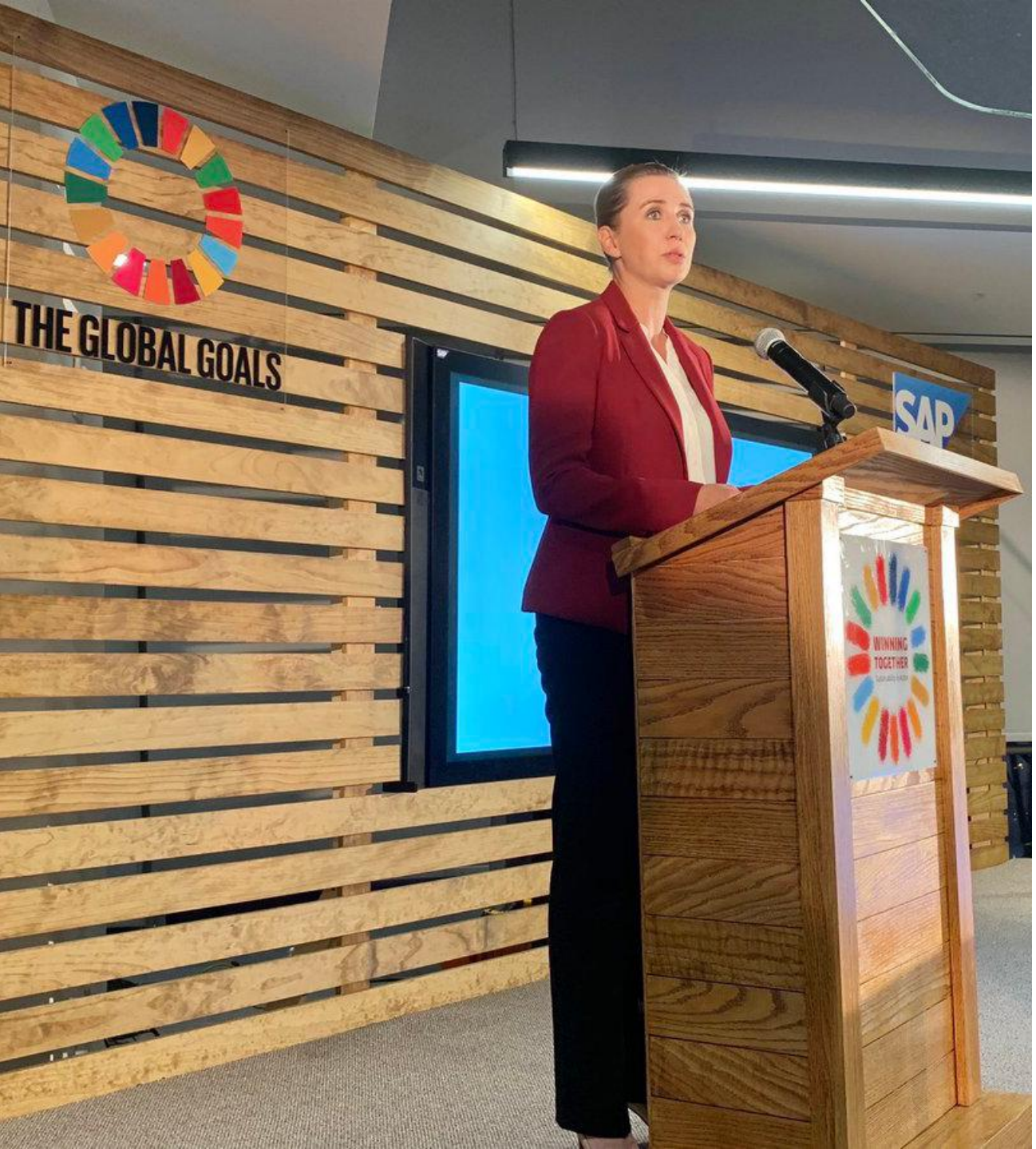
Climate Smart Agriculture



Public awareness

Global School Climate Strike

Doctors protesting in support of Extinction Rebellion in London to highlight deaths caused by air pollution. Photograph: Dominic Lipinski/PA



Leadership: Government

- Strong government commitment is essential to solving the climate emergency.
- Danish Prime Minister Mette Frederiksen pledged to work to achieve Denmark's ambitious 70% cut in CO2 emissions by 2030.
- **Green New Deal?**

Source: World Resources Institute

Partnering to beat air pollution!

- **RE100**: global corporate leadership initiative bringing together 191 influential businesses committed to 100% renewable electricity.
- **EV100**: 52 forward looking companies committed to accelerating the transition to electric vehicles
- **P4G:** brings together business, government, and civil society organizations in innovative public-private partnerships to advance solutions for green growth.

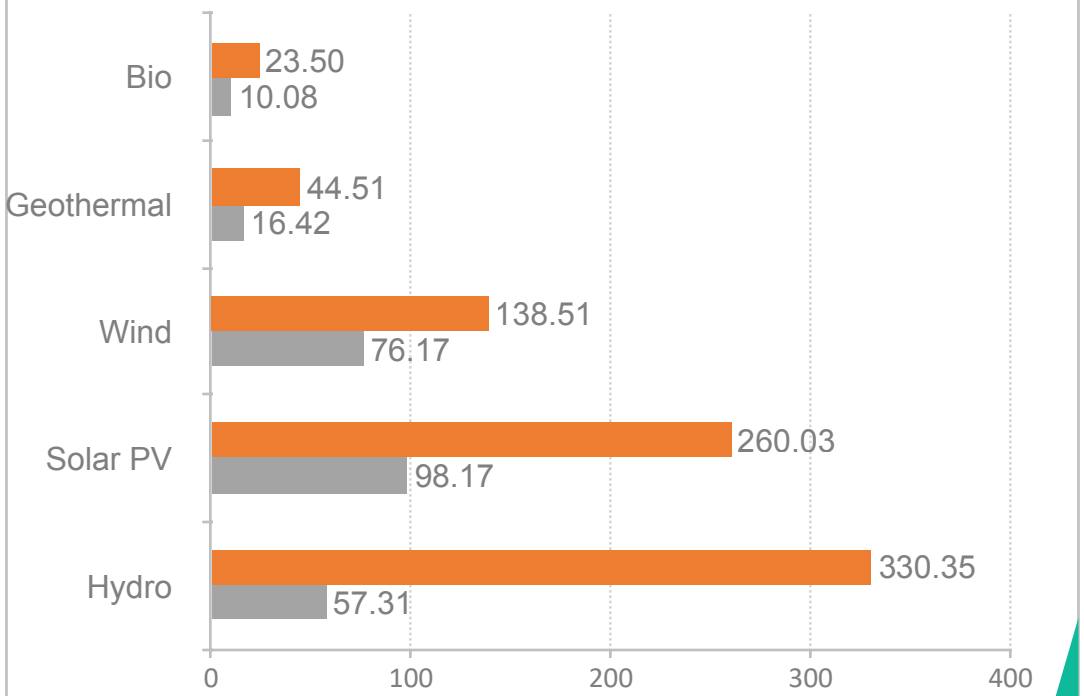
Private Sector Involvement:

- Innovation in green technologies and air quality solutions.
- Carbon pricing: Existing market schemes should be both strengthened and extended to include more economic sectors.
- Encourage asset managers, asset owners, banks, and insurers to decarbonize the economy and account for the true risks posed by climate change
- New business and investment opportunities with the transition to a low-carbon economy.
- UN Global Compact reports that 1,300 companies worldwide have already incorporated a carbon price into their operations.

Finance

Developing bankable projects in developing countries is key for the energy transition

RE investment needs by tech. in developing countries[1] (USD bn)



Financing the energy transition

- 60-70% of the required investment in the energy sector needs to be done in developing countries
- The total estimated **investment required for developing countries by 2030 ranges US$258-797 billion**[1]
- **Top 5 countries**:
  - India (US$140-292 billion)
  - Mexico (US$29-65 billion)
  - Indonesia (US$18-53 billion)
  - Ethiopia (US$15-92 billion)
  - Morocco (US$11-24 billion)

1. Calculation based on 27 selected developing countries

Source: Meeting Conditional Targets in NDCs of Developing Countries: Renewable Energy Targets and Required Investment of GGGI Member and Partner Countries, 2018

GGGI's Green Investment Services (GIS)

- GGGI's GIS Team aims to mobilize the initial commitment from financiers or project developers to invest and further advance climate projects in member and partner countries.
- Toward this end, GIS works with private and public investors and policymakers to develop bankable projects, design financial instruments and build National Financing Vehicles (NFVs).

The figure to the right captures GGGI's niche among various organizations providing support to different types of projects – fully grant funded on the left, commercial investors on the right and high risk/ low return projects in the middle that require support to become bankable and attract concessional or commercial finance.

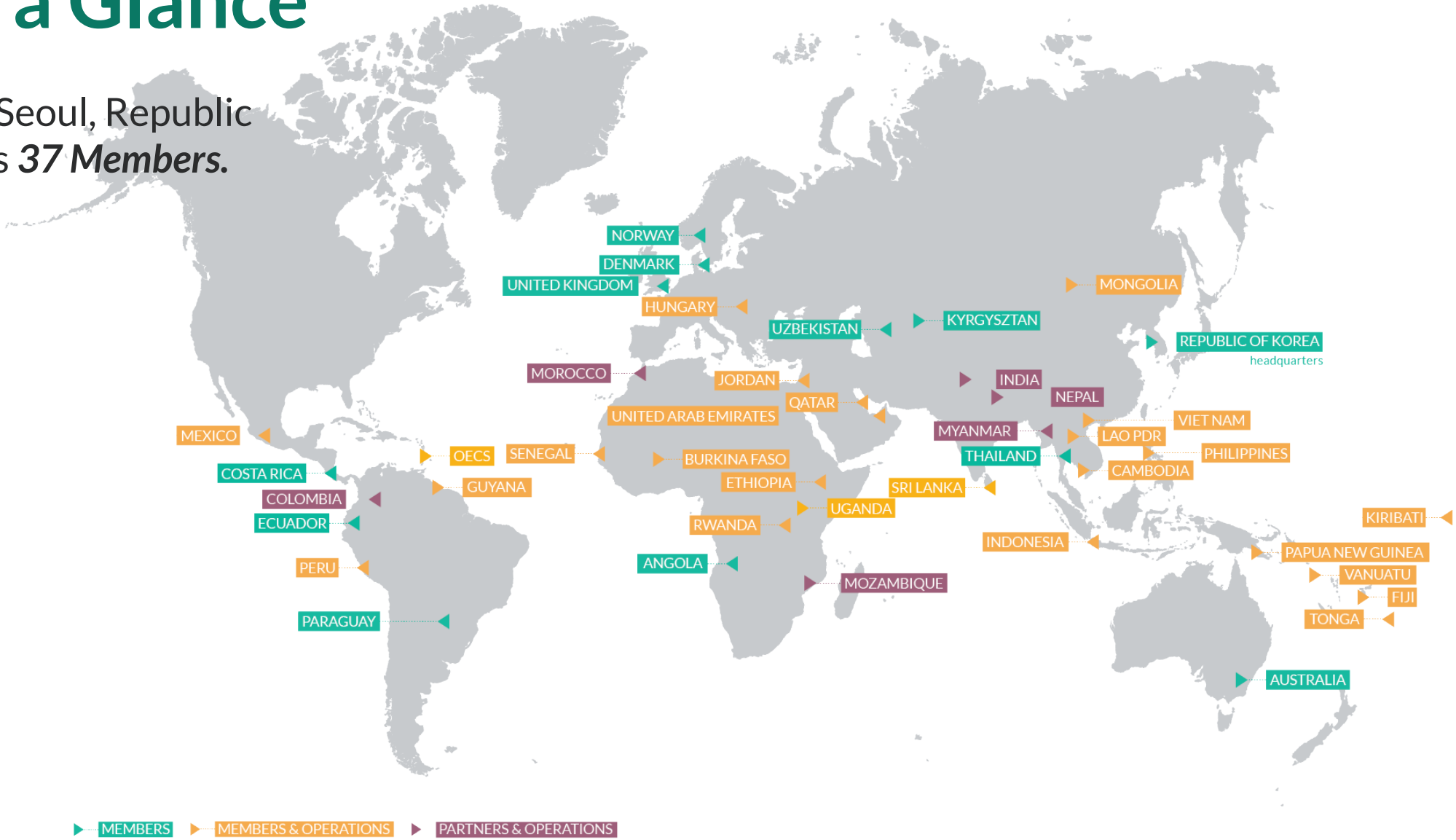
GGGI

Intergovernmental organization established to accelerate the green transition

GGGI at a Glance

Headquartered in Seoul, Republic of Korea, GGGI has ***37 Members.***

(As of May 2020*)



Supporting Partner Governments to Achieve the SDGs and NDCs

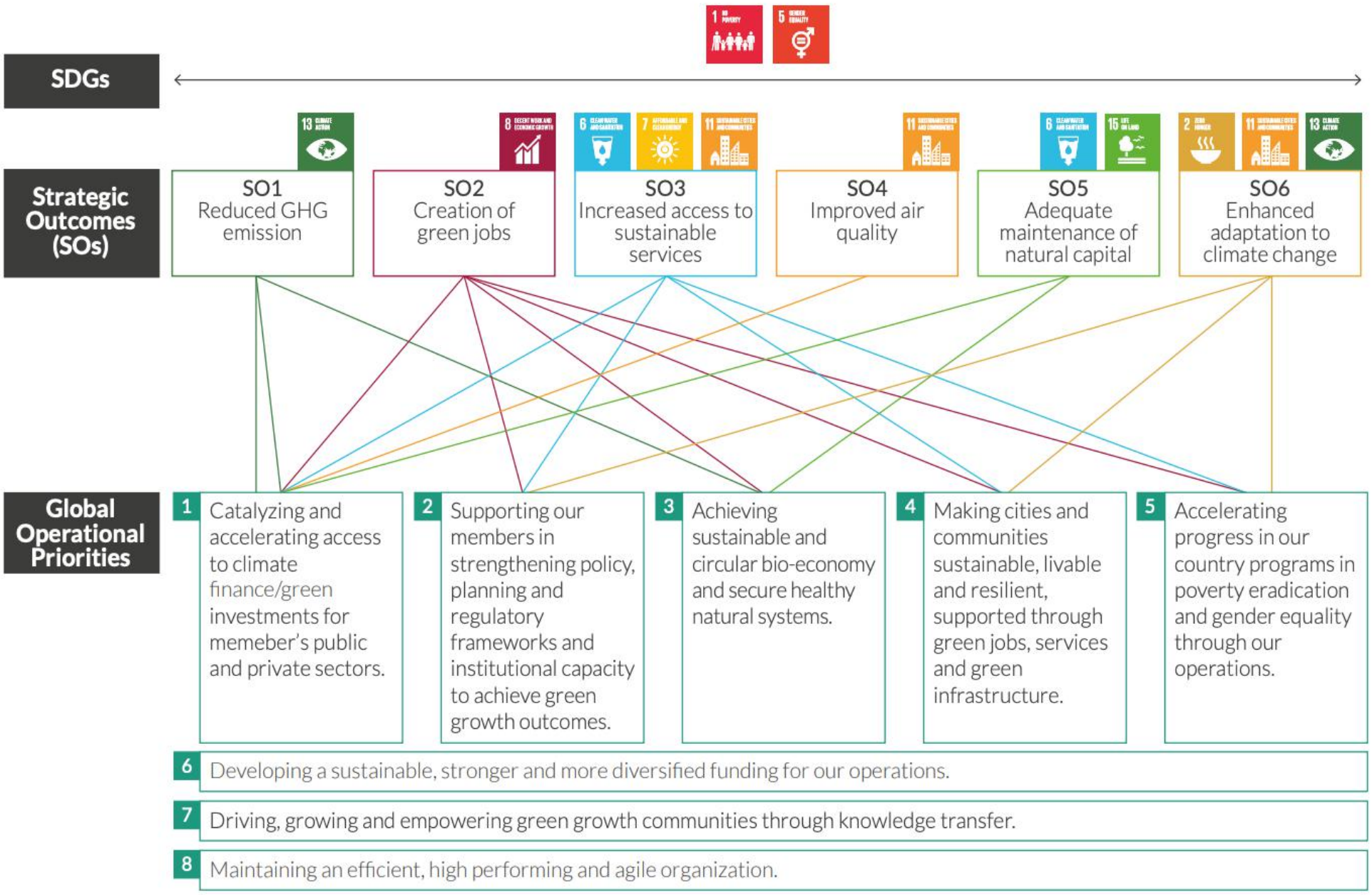
37

Work with 37 developing country partner governments to achieve their Nationally Determined Contributions (NDCs)

17

GGGI's more than 100 projects contribute to all of the 17 Sustainable Development Goals (SDGs)

(As of May 2020*)



SGDs linked with GGGI's Strategic Outcomes & Global Operational Priorities

Results at a Glance: 2019 Annual Report

Green Employment

Country examples

- In **Fiji**, a recent GGGI study estimated that jobs generated under a very high ambitious scenario could create 2.1 and 3.2 times more jobs by 2030 and 2050,

Rwanda's Green New Airport

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.

PNG : Green Telecom Towers

Investment Overview (Readiness : Origination Phase)

- The proposed investment aims at funding the Energy Service Companies (ESCO) in PNG toward 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
  - High operating expenditure: Energy costs account for ~30 to 40% of total operational expenditure for a telecom tower company.
  - 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
  - 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.
  - Reduced maintenance requirements and increased service intervals.

Project Characteristics	
Location	100 Telcom towers in urban and semi-urban areas of PNG
Asset ownership	ESCO
Cost of Solar Hybrid system	US$ 150 – 200k per unit
Capital Structure	TBD
Contract Period	10 - 15 years
Funding	ESCO
O&M	ESCO
Risk	Risk sharing between Tower company and ESCO
Expected Payback	7 – 8 years

Investment in Solar Freezers Project, Vanuatu

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

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


BLUE SKIES
&
NETZERO
2050
CAMPAIGN
BLUE SKIES &
NETZERO 2050
CAMPAIGN

Overview

Fine dust is a growing concern in the Republic of Korea; it is a major environmental risk to health, the quality of life, and the overall economy. Numerous domestic and international studies are quantifying these costs. In 2019, the Government passed emergency measures to tackle air pollution after record levels of fine dust blanketed the country. In the same year, the Government advocated for the United Nations to designate an “International Day of Clean Air for Blue Skies” as a day to raise awareness about air pollution around the world, and to strengthen international cooperation and efforts to reduce pollution. The 74th Session of the United Nations adopted this Korea-led resolution by consensus of all the UN member states a resolution of designating the “International Day of Clean Air for Blue Skies” as September 7.

The Campaign on Blue Skies and NetZero 2050 in the Republic of Korea

Key objectives:

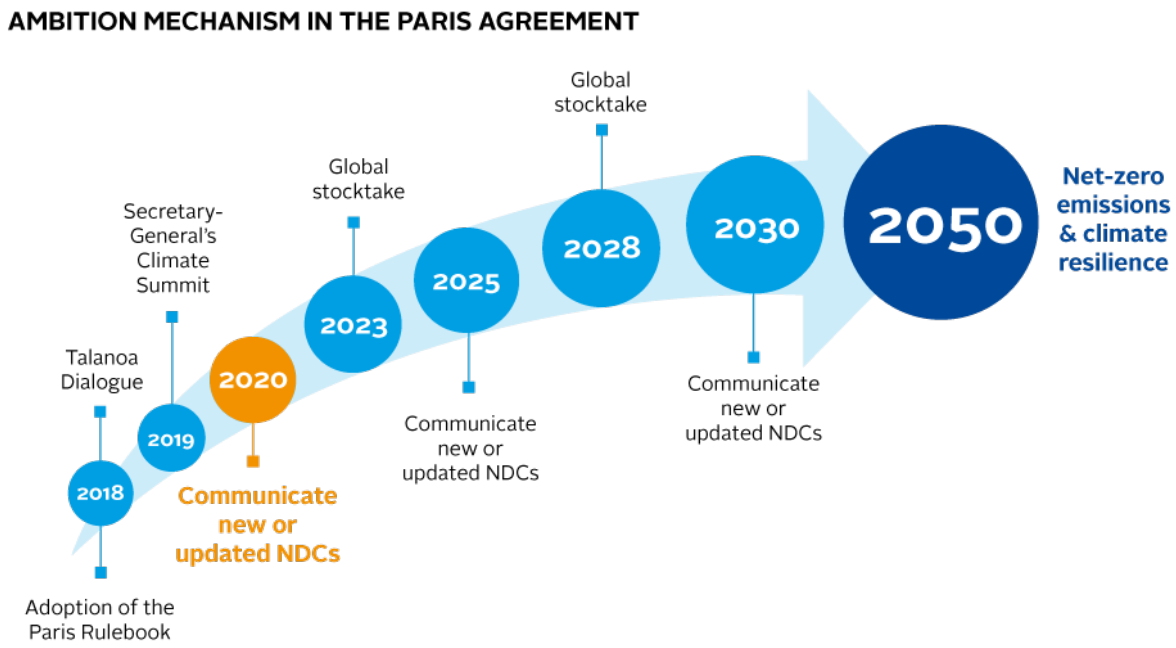
- Commitment to NetZero2050 by ROK government
- Stop ROK government-subsidies/support for coal-fired power plants internationally

JOIN US!

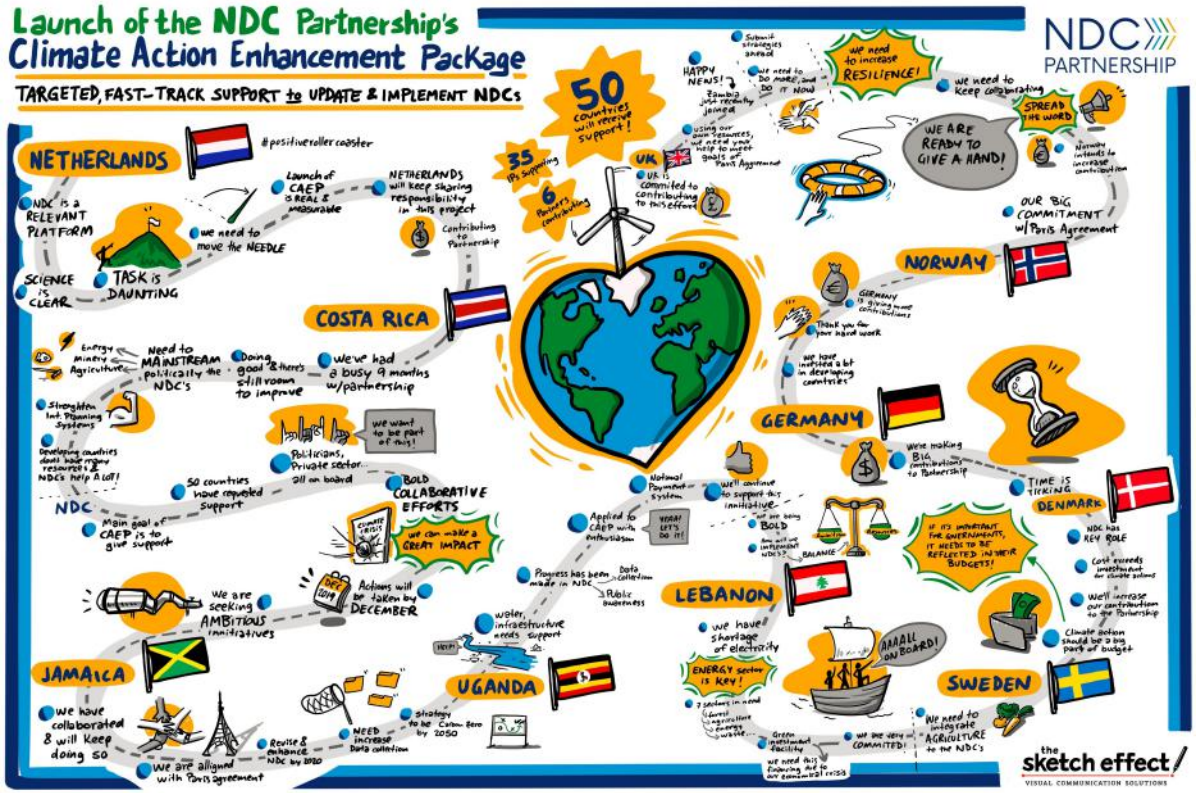
- GGGI has taken the initiative and will co-host the Secretariat with the Climate Change Center.
- More than 30 organizations, including Korean NGOs, embassies and universities have joined the Campaign as of mid-April 2020.
- Show your support by listing your organization / logo in the Campaign materials.
- Organize one or more event under the overall banner of the campaign – using the campaign branding.
- Support the Campaign financially, if you can, with $10K (covering out of pocket for Campaign materials, communication and some events).

- **ORGANIZATIONS THAT ARE INTERESTED IN JOINING THE CAMPAIGN ARE INVITED TO CONTACT US AT COMMUNICATIONS@GGGI.ORG.**

2020: the moment of truth for the Paris Agreement – will new NDCs be more ambitious? #NetZero2050



Source: wri.org/publication/NDC-enchancement-by-2020



Conclusions

1. There is an unprecedented ***Sustainability Crisis*** – Climate Crisis, Plastics Crisis, Air Pollution Crisis, Species Extinction Crisis, Health Crisis….
2. The ***COVID-19 Crisis*** shows us how vulnerable our globalized society is – can we recover green?
3. There are green growth success stories to build upon.
4. Economic growth is still #1 goal – but it has to be ***green growth!***
5. Green growth innovations are available: renewable energy, e-mobility, zero-energy buildings, nature-based solutions
6. It will take public awareness, leadership across stakeholders and countries – a grand coalition; and finance – trillions of $$.
7. Can we implement a ***Green New Deal?***

Thank You

Twitter: @FrankRijsberman

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