Needs Assessment on Climate Technology for Developing Countries

10 July, 2019

Dohyun Park
Manager & Climate Change Specialist
Korea International Cooperation Agency (KOICA)

People Peace Prosperity Planet

Introduction to KOICA's Climate Action

KOICA

2009 - 2014 — **East Asia Climate Partnership**
- $200M package international development initiative
- 15 bilateral projects in 9 Asian countries, 13 multi-bi projects
- 5 focusing areas: water, waste, low-carbon energy, low-carbon cities, and forestation

2016 — **Mid-term ODA Strategy for Climate Change 2016-2021**
- Strategic framework for climate change ODA

2017 — **Environmental and Social Safeguard**
- Improving management system and internal capacity for environmental and social impact management

2018 — **Climate Action Mid-term Implementation Plan 2019-2021**
- 4 strategic tasks identified
- Baseline for KOICA Climate Action Initiative

2019 — **Climate Action Initiative Programs**
- ASEAN Climate Readiness Program
- GCF co-financing projects

Accreditation to the Green Climate Fund *(ongoing)*

People Peace Prosperity Planet

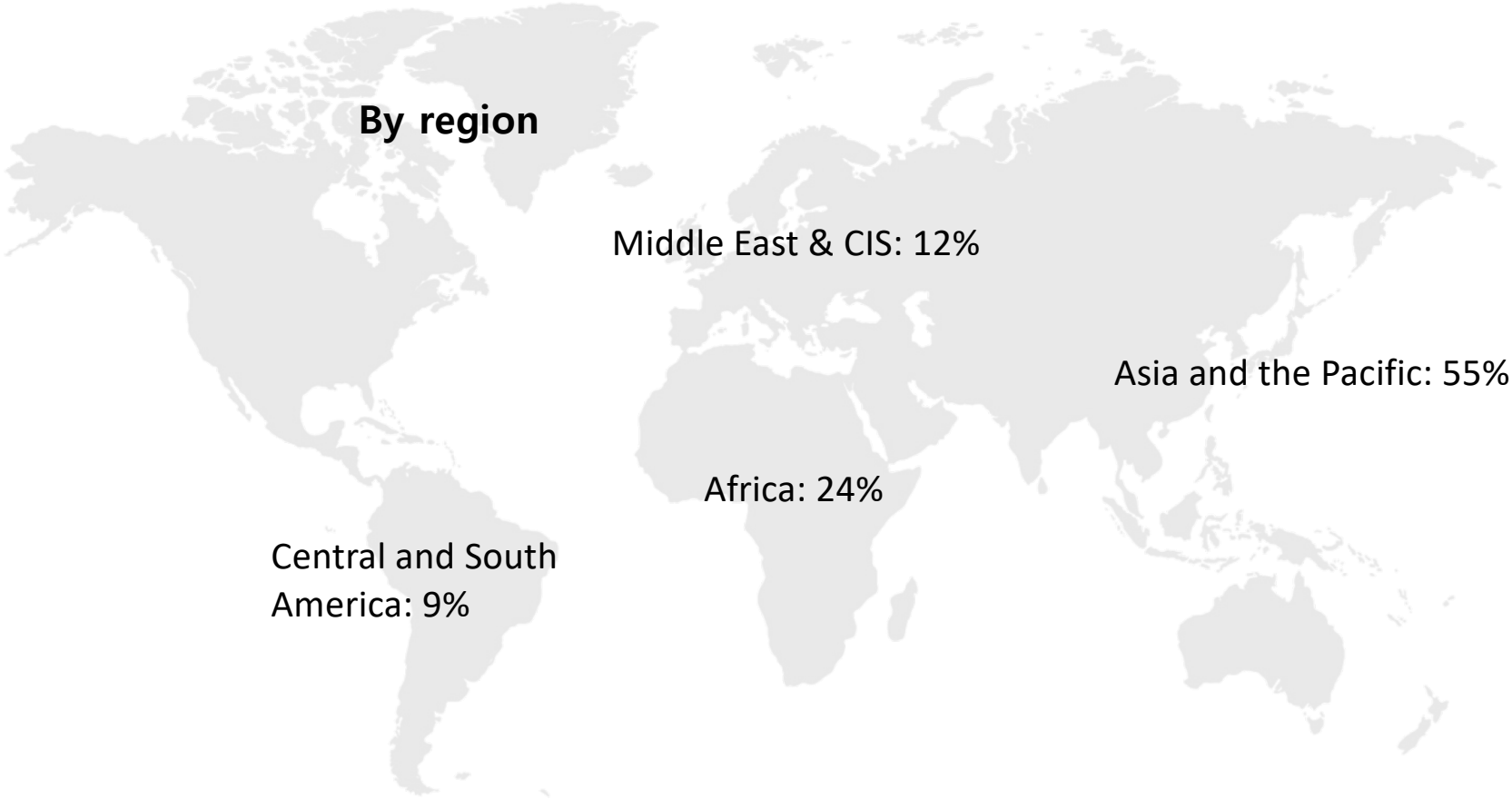
KOICA Climate-related ODA Portfolio

KOICA

Total $490m for 601 projects during 2008-2017
Annual average 16% of total ODA programs (OECD DAC average 26% in 2017)

By sector
Water(49%), Energy(24%), Environmental Management(10%), and etc.

By region



KOICA's Key Policies

People
Peace
Prosperity
Planet

4Ps Strategic Framework

- **4Ps as core values** of KOICA ODA
- **Planet** for environmental and climate change mainstreaming into development programs

Presidential Committee on
New Southern Policy

New Southern Policy

- **Double ODA programs for six ASEAN countries** by 2023 (Cambodia, Lao PDR, Myanmar, Vietnam, Indonesia, the Philippines)
- **5 focusing areas**: higher education, rural development, urban development, digital partnership, and transportation

People Peace Prosperity Planet

Climate Action Implementation Plan

KOICA

KOICA's climate-related focus areas

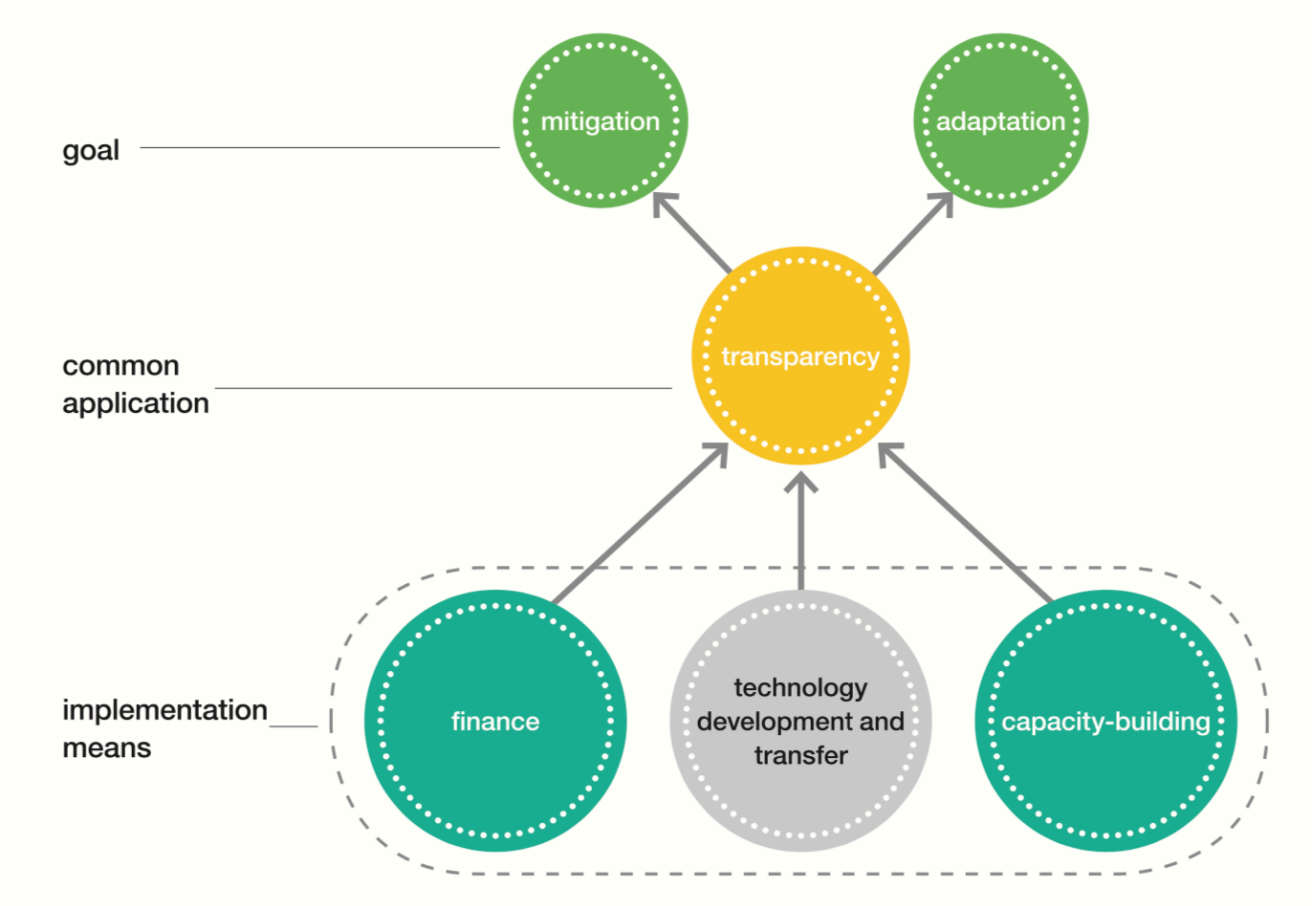
Low carbon development and GHG mitigation

Climate-resilience and adaptation capacity enhancement

Climate-related governance, institutional, human capacity building

Bridging role between different financial resources

Implementation means for Paris Agreement



Source: UNFCCC (2013) Implementation of all the elements of decision 1/CP.17, GTC (2019) White paper on 2019 green climate technology

Technology Needs Assessment, UNFCCC

Technology Needs Assessment (TNA), UNFCCC

- Understanding climate technology is the starting point for effective on climate change. By understanding these needs we can determine how to reduce greenhouse gas emissions and adapt to the adverse impacts of climate change.
- To determine their climate technology priorities, countries undertake technology needs assessments (TNAs). A TNA supports national sustainable development, builds national capacity and facilities the implementation of prioritized climate technologies.

Source: UNFCCC TT:Clear, 2019

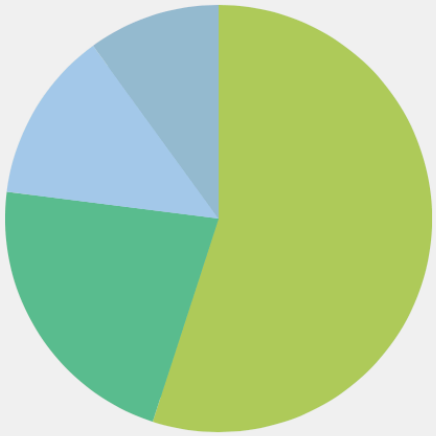
People Peace Prosperity Planet

KOICA

UNFCCC TNA at a glance

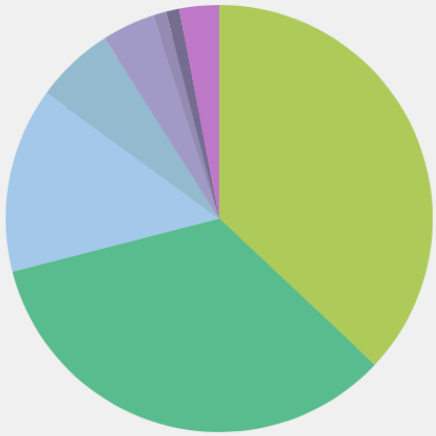
25	26	85	350	2001
Number of developing countries currently undertaking a TNA	Number of developing countries that referred to TNAs in their nationally determined	Number of developing countries that have completed a TNA	Number of TAPs and project ideas seeking support	The year the TNA process started

Prioritized sectors - Mitigation



- Energy 55%
- Agriculture, forestry and land-use 22%
- Waste 13%
- Industrial processes and product use 10%

Prioritized sectors - Adaptation

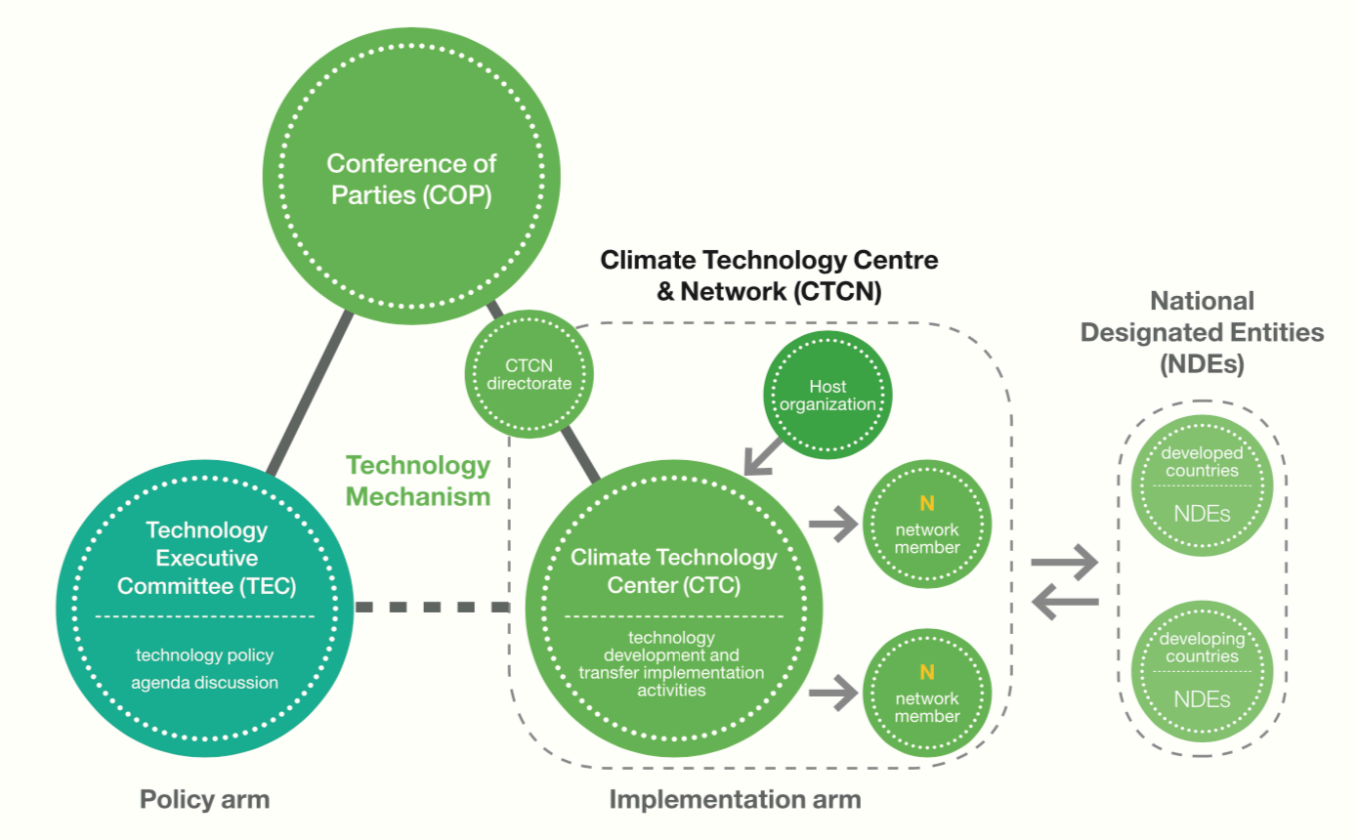


- Agriculture 37%
- Water 34%
- Infrastructure /settlement 14%
- Climate observation 6%
- Human health 4%
- Tourism 1%
- Energy 1%
- Other 3%

Source: UNFCCC TT:Clear, 2019

CTCN

- Climate Technology Centre and Network (CTCN)
  - Operational arm of the UNFCCC technology mechanism
  - Transfer environmentally sound technology and provide capacity building
  - 489 network members



CTCN network members in Korea

과학기술정보통신부
Ministry of Science and ICT

GREEN TECHNOLOGY CENTER Korea

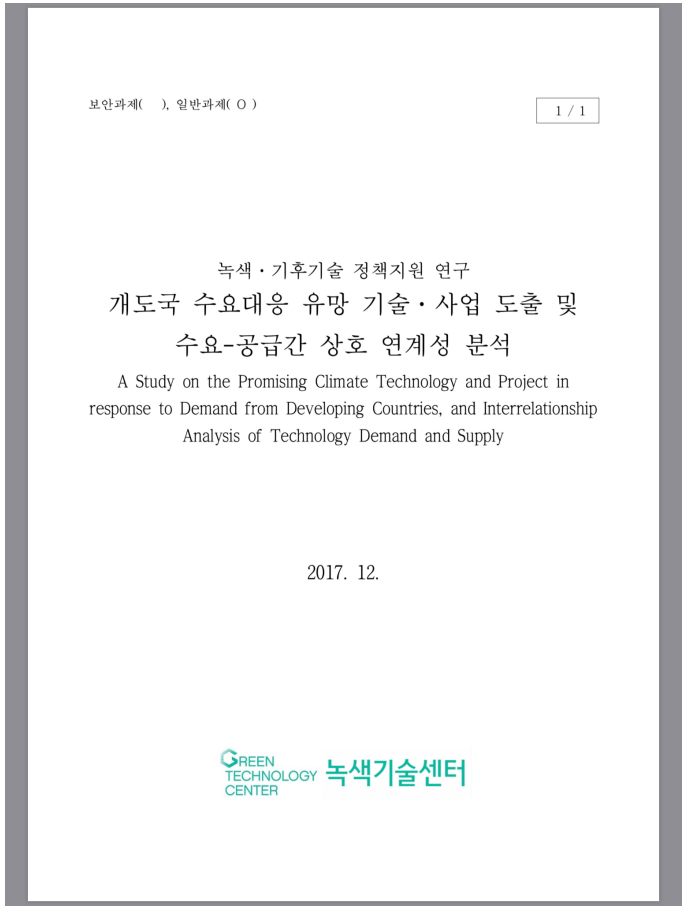
MSIT: NDE of Korea, Green Technology Center

- Korea has 58 network members to the CTCN
- Green Technology Center (GTC), a research institute under the MSIT, provides national green technology R&D policies and coordinates green technology cooperation

Technology needs assessment in Korea

KOICA

- A Study on the promising climate technology and project in response to demand from developing countries, and interrelationship analysis of technology demand and supply (GTC, 2017)
- Technology demand status in the **mitigation sector** of climate technology by using the submitted TNA reports of 86 countries, 1,027 out of 1,901 tech demands account for **54% of total**.



보안과제( ), 일반과제(O)

1 / 1

녹색·기후기술 정책지원 연구

개도국 수요대응 유망 기술·사업 도출 및 수요-공급간 상호 연계성 분석

A Study on the Promising Climate Technology and Project in response to Demand from Developing Countries, and Interrelationship Analysis of Technology Demand and Supply

2017. 12.

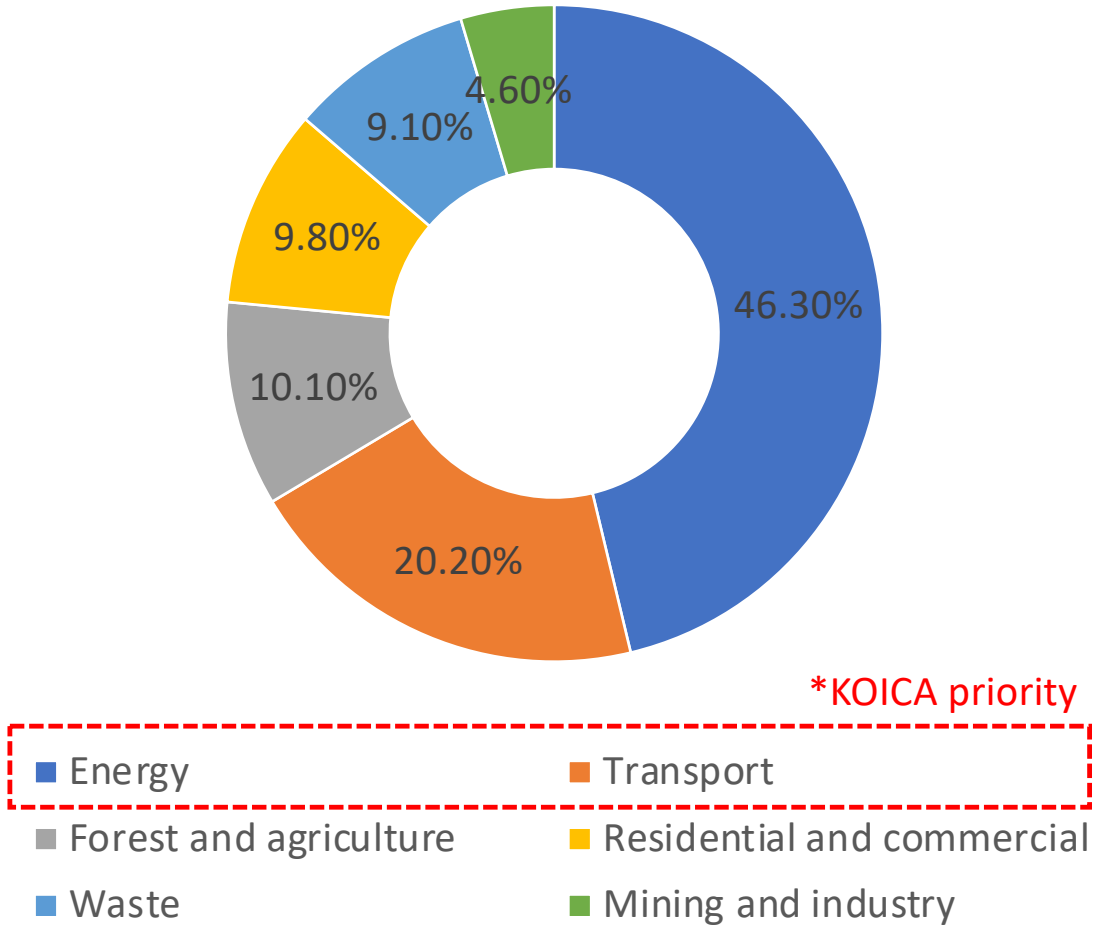
GREEN TECHNOLOGY CENTER 녹색기술센터

Source: Green Technology Center, 2017

TNA in Korea – Sectoral demand analysis

KOICA

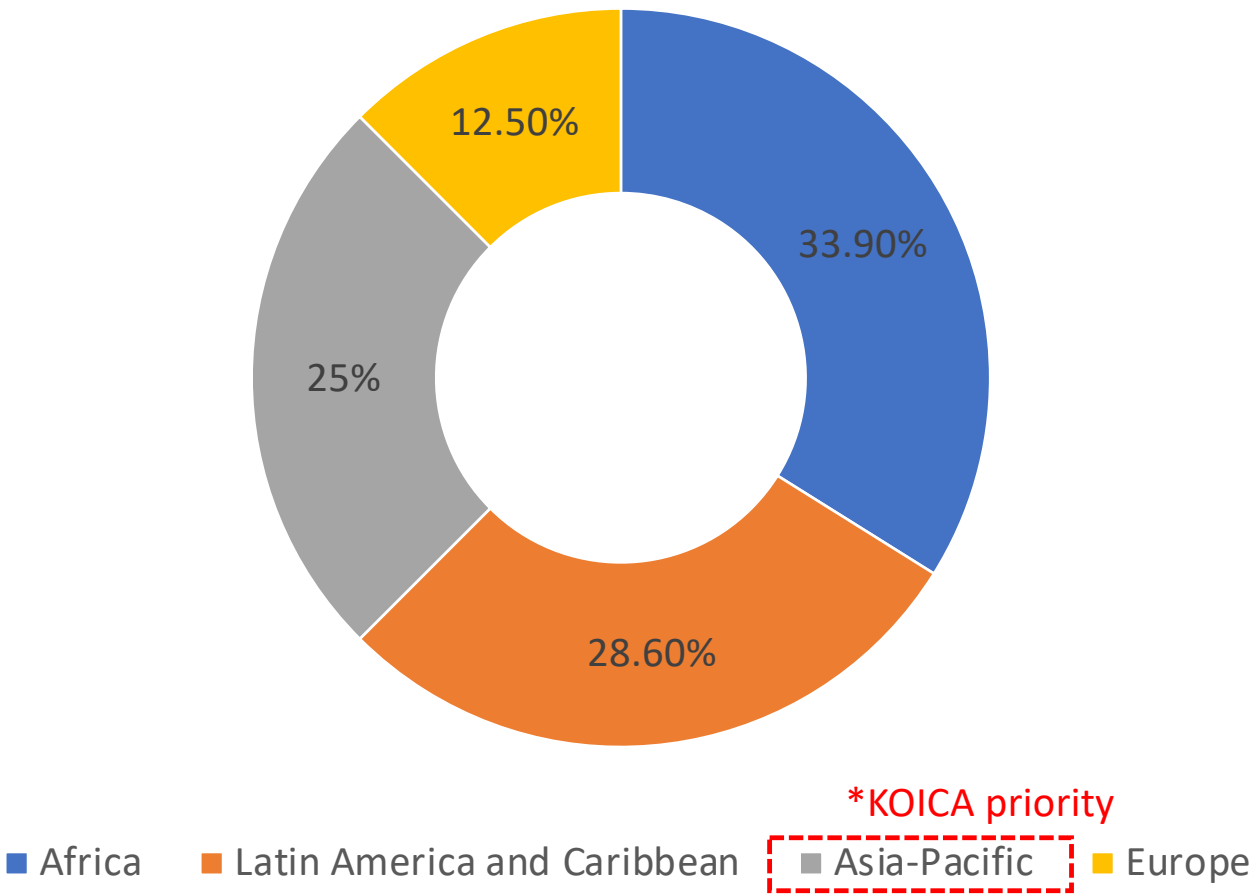
Highest demand of mitigation sector
from TNA reports of 86 countries



TNA in Korea – Regional demand analysis

KOICA

Regional demands of mitigation sector
from TNA reports of 86 countries

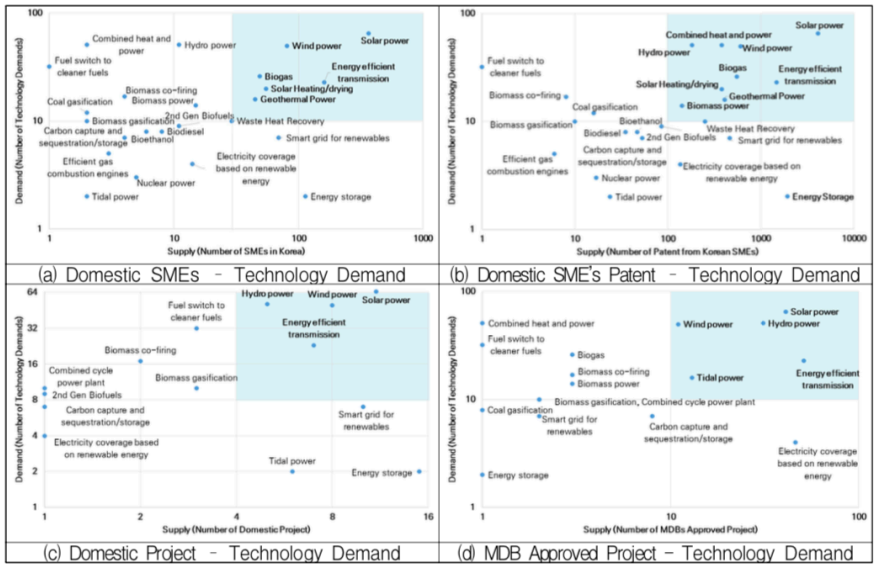


TNA in Korea – D&S correlation analysis

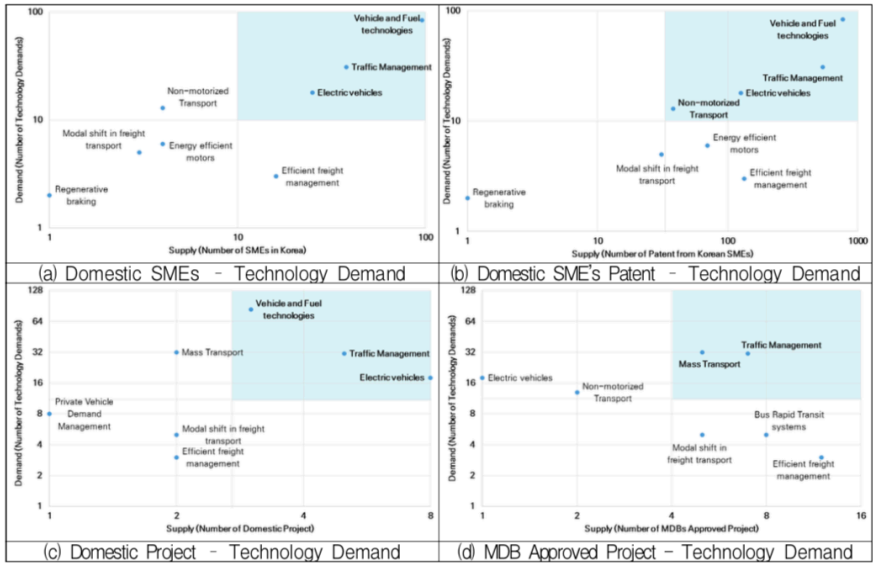
KOICA

- Correlation analysis between **technology demand** and **supply** in energy and transportation sectors
  - ✓ Domestic SMEs, SME's patent, domestic project, MDB approved project

<Correlation of Number of Technology Demands and Supply in Energy Sector>



<Correlation of Number of Technology Demands and Supply in Transport Sector>



TNA in Korea – Result (1/2)

- Promising energy and transport technologies in response to demand from developing countries: 6 technology identified

	Technology Class	Technology Demand &Domestic SMEs	Technology Demand &Domestic SME's Patent	Technology Demand &Domestic Project	Technology Demand & MDB Project
Energy	Energy efficient transmission	◎	◎	◎	◎
	Solar power	◎	◎	◎	◎
	Hydro power		◎	◎	◎
	Geothermal Power	◎	◎		◎
	Wind power	◎	◎	◎	◎
	Biogas	◎	◎		
	Biomass power		◎		
	Combined heat and power		◎		
	Solar Heating/drying	◎			
	Waste Heat Recovery		◎		
Transport	Traffic Management	◎	◎	◎	◎
	Mass Transport				◎
	Electric vehicles	◎	◎	◎	
	Vehicle and Fuel technologies	◎	◎	◎	

*KOICA priority

TNA in Korea – Result (2/2)

- 18 key promising int'l cooperation projects selection

AHP test result from 86 candidate projects

- Selection criteria:

✓ Green technology effect
✓ Industrialize possibility
✓ Economic effect
✓ Project feasibility
✓ Ripple effect

Category	Technology Name	Project Name
Energy	Solar Power	Hybrid Power System Considering Transmission Network In Developing Countries
		Hybrid Solar Power System with On-grid Generation
		Electricity Supply Town Project (Guyana) Using Customized Solar Energy
	Energy Efficient Transmission	Smart Village Considering Agriculture and Animal Husbandry
		Establish Basic Infrastructures Based on Sustainable Development In Underdeveloped Countries
		Development and Demonstration of Optimal Micro Grid System Through Distributed Resource Combination In Various Environments
	Wind Power	Detailed Investigation of Wind Resources of Developing Countries and Construction of Wind Resource Map
		Build a Stand-Alone Power Generation Complex to Improve Living Environment Using Small Wind Power
		Blower Wind System Utilizing The Exhaust Air of Buildings
Transport	Traffic Management	Traffic Congestion Management System in Special Area
		Establishment of Public Transport Facility Operation Plan in Developing Countries
		Developing Public Transportation Master Plan
	Electric	Demonstration of Production Technology for Domestic Parts of The
	Vehicles	Philippines Electric and Electric Motorcycle
		Personal Mobility Vehicle in Urban Area
		Promotion of Electric Motorcycle and Tricycle Rental & Car Sharing
	Vehicle and Fuel Technologies	Production of LPG Engine for Medium-Sized Commercial Bus and Installation Technology for Euro-4 Standard
		Diffusion of CNG-Diesel Engine For Large Commercial Truck and Bus
		City Bus Fuel Efficiency Improvement Project

*KOICA priority

TNA in Korea - Summary

- **Energy and transport** sectors as high demands for climate technology from developing countries
  - KOICA to be focusing on ODA project identification and development in energy and transport sectors for mitigation
- **6 promising technologies:** solar power, energy efficient transmission, wind power, traffic management, electronic vehicles, vehicles and fuel technology
- **Selected 18 promising projects** to be considered as CTCN TA projects, further as bilateral ODA projects

Low-carbon Development Approach

Sectors	Finance	Opportunity
• Renewable energy • Energy efficiency • Transportation • Urban development	• KOICA grant • EDCF loan • Private equity • GCF finance	• Private sector engagement • Blended finance • Scale-up effect

Case

Agro-photovoltaic project in Fiji

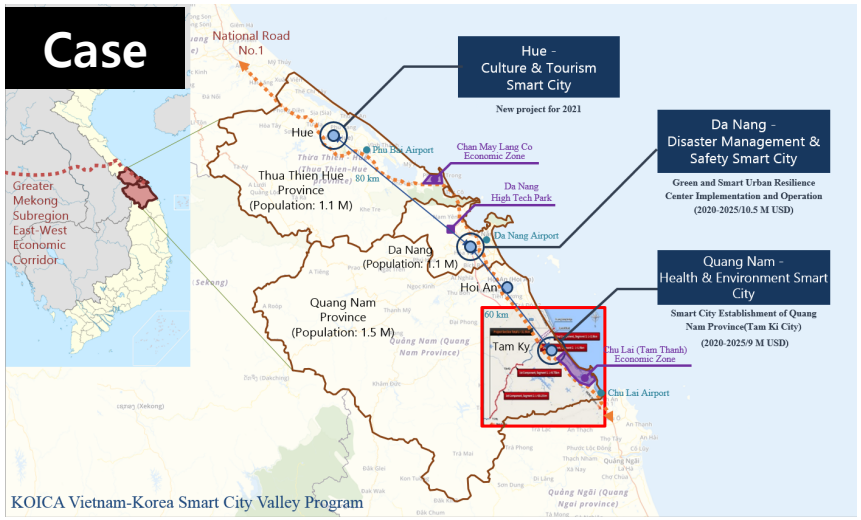
- $20M (10M GCF funding as SAP project) for 2021-2025
- KOICA, GCF, FDB(+private) blended finance
- Estimated mitigation impact: 57,585t (CO_2eq.)

Climate-resilient Development Approach

KOICA

Sectors	Finance	Opportunity
• Disaster risk reduction • Rural and urban development • Water management & agriculture	• KOICA grant • EDCF loan • GCF finance	• Blended finance • Scale-up effect

Case



Vietnam Smart City Valley Program

- Multi-sectoral, multi-space approach
- $50M+ KOICA grant during 2020-2025
- Urban planning, tourism, DRR, health, water and agriculture sectors included
- Spatial preparation for follow-up projects
- Low carbon development sector (transportation) to be also considered

Building Climate Readiness Approach

Sectors	Finance	Opportunity
• Governance • Institutional & policy set-up • Human capacity building	• KOICA grant • In-kind contributions from partner orgs.	• Sustainable governance • Capacity to access climate finance • Follow-up project identification

Case

ASEAN Climate Readiness Program

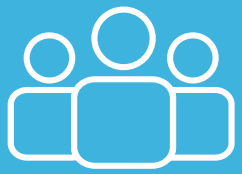
- Multi-country, multi-agency approach
- USD10M+ for 6 countries for 2021-2025
- 5 years program, phasal approach
- Encouraging a diverse partnership
- Needs assessments for capacity building to be undertaken

Final remarks

Information gathering, scientific analysis and knowing the needs is essential

Mapping with international cooperation program and projects

Finance, technology transfer, and capacity building with strong coordination



Thank you for attention

Dohyun Park
Manager & Climate Change Specialist
d.park@koica.go.kr

KOICA
People Peace Prosperity Planet