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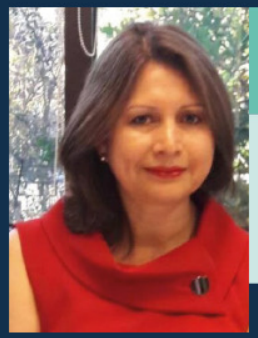

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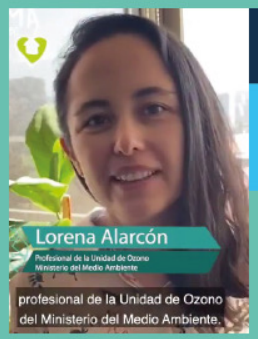
Head, Global Climate Action Unit, **UNEP**

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

August 31 (9-11am GMT-5) Regional Capacity Building Workshops for LAC



Lorena Alarcón
National Ozone Unit, **Chile**

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National Ozone Unit, **Panama**

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Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

The NCAP Development Process and Cooling Demand Assessment Training Module Introduction

Módulo de Introducción para la Capacitación para el Desarrollo de un PANE y la Evaluación de la Demanda de Enfriamiento

Marco Duran

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Introducción a la metodología para el desarrollo de un PANE

Introduction to the methodology for the development of a NCAP

Marco Duran
Especialista en Eficiencia Energética y Refrigeración
Cool Coalition, UNEP

Presentación de la Metodología de los PANE y Talleres para la Creación de Capacidades para América Latina y El Caribe

31 de agosto 2021: 09:00 – 11:00 am GMT-5

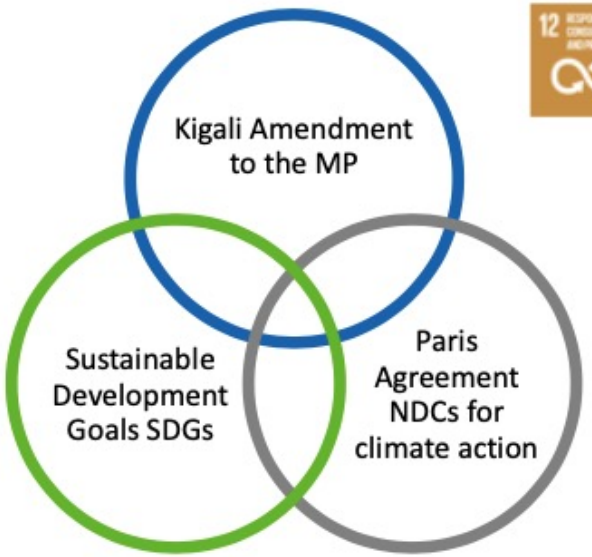
ONU programa para el medio ambiente 50 1972-2022 | Cool Coalition | PNUD | U4E United for Efficiency | KIGALI COOLING EFFICIENCY PROGRAM

Rol clave de los planes de acción nacional de enfriamiento (PANEs)

Key role of National Cooling Action Plans (NCAPs)

"We need all countries to develop National Cooling Action Plans to deliver efficient and sustainable cooling and bring essential life-preserving services like vaccines and safe food to all people."

- Antonio Guterres, UN Secretary General
World Ozone Day 2019



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Desarollando una metodología para PANEs

Developing a NCAP methodology

Cool Coalition

Cool Coalition · UNITED NATIONS ESCAP Economic and Social Commission for Asia and the Pacific · KIGALI COOLING EFFICIENCY PROGRAM · Alliance for an Energy Efficient Economy

In collaboration with

UNDP Empowered lives. Resilient nations. · UN environment programme · SUSTAINABLE ENERGY FOR ALL · U4E United for Efficiency · giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH · clasp · UNIDO UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION · ENERGY FOUNDATION 能源基金会 · WORLD BANK GROUP · UNIVERSITY OF BIRMINGHAM

Una metodología holística para apoyar a los países con una **marco guía integral** para el desarollo de un PANE. Actualmente siendo aplicada en **Cambodia** e **Indonesia**

A holistic methodology to support countries with a **comprehensive guiding framework** for developing their NCAP. Currently piloted in **Cambodia** and **Indonesia**

Think Holistically, Plan Strategically

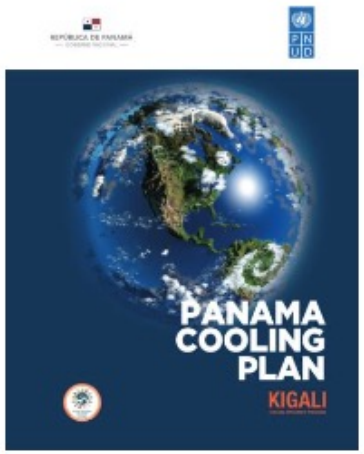
NCAPs for joint coordinated action

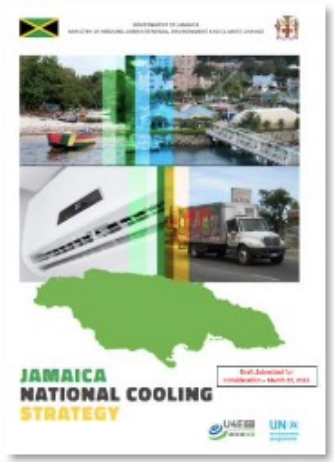
Cool Coalition

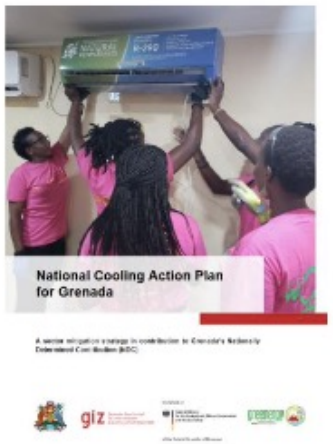
Country's can better plan their cooling action with NCAPs

- Diagnose the national situation
- Define limitations and scope (priority sectors)
- Understand the National Context and ongoing efforts
- Recommendations-based: to respond to key gaps and opportunities
- Supporting tools and programme development to help drive implementation

- Diagnosticar la situación nacional
- Definir las limitaciones y el alcance (sectores prioritarios)
- Comprender el contexto Nacional y esfuerzo existentes
- Basado en recomendaciones: para responder a las principales carencias y oportunidades
- Herramientas de apoyo y desarrollo de programas para apoyar su implementación







Some examples in the region - Algunos ejemplos en la región

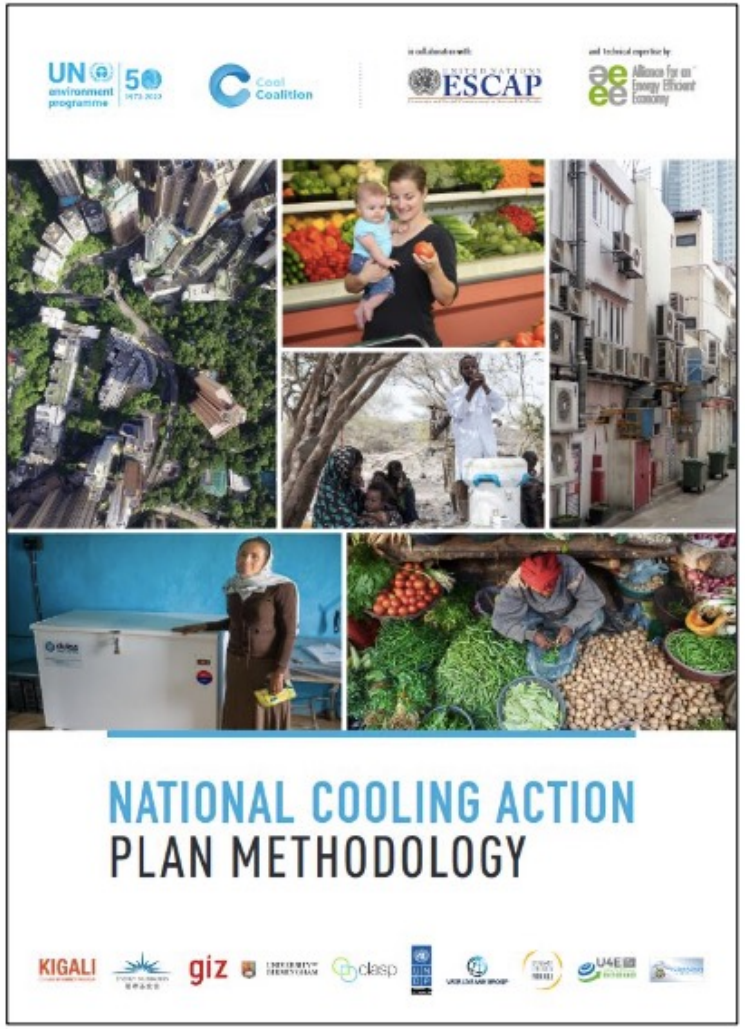
National Cooling Action Plan Methodology (2021)

Build on partner's and countrie's experience and insights

Construyendo basados en la experiencia de los socios y países

NCAP 7-step Methodology

1. Country-Context Mapping
2. NCAP Planning And Pre-Work
3. Sector-Wise Current And Future Cooling Demand Assessment
4. Sector-Specific Recommendations & Solutions
5. Integration
6. Development of NCAP Recommendations
7. NCAP Report & Implementation Guidance



Vinculando Acción Climática, Enmieda de Kigali y ODS

Linking Climate Action, Kigali Amendment and SDGs

5 modular sector: Space Cooling, Food and Healthcare Cold Chain, Mobile AC and Process/Industrial Cooling

Through the NCAP Cooling Data Assessment we address:

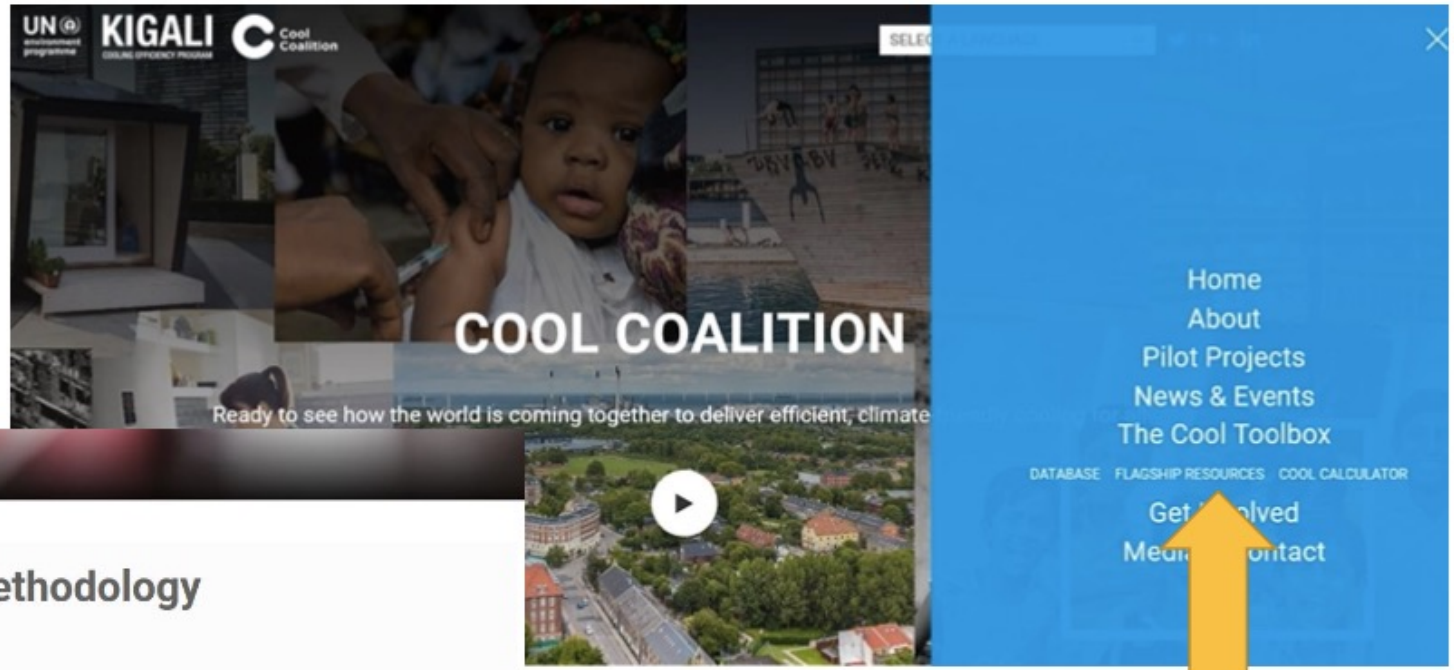
Met Demand	Existing equipment assessment: supplied demand-stock	Electricity consumption (e.g. ACs, mobile units, refrigerated storages)	Indirect GHG emissions assessment	Potential **electricity savings** opportunities through interventions	→	BAU and Policy intervention and savings projections	**Contributions to Paris Agreement and Kigali Amendment and SDGs 7, 11. 12. 13**
	Refrigerants inventory by type and use	Refrigerants consumption per technology (charge, leakage, disposal)	Direct GHG emissions assessment	Opportunities from **refrigerant transition** and savings through interventions			
Unmet Demand	Demand gap assessment (heat stress, AC penetration, cold-chain needed volume)	Meeting unmet demand (passive + active cooling solutions)	Increase of services and infrastructure assessment	Evidence on **unserved sectors** and opportunities to asses the need through interventions		BAU and Policy intervention and access projections	**SDGs related to access 1,2,3,7,8,9**

¿Cómo acceder a la metología para PANEs?

Where to access the NCAP methodology?

https://coolcoalition.org/

1



Publication

National Cooling Action Plan Methodology

Authors:
Cool Coalition, AEEE, UNEP, UNESCAP, World Bank Group, UNDP, K-CEP, SEforALL, GiZ, U4E, OzonAction, Clasp, Energy China Foundation, University of Birmingham

Resource type:
Get the data collection frameworks: https://bit.ly/DataCollectionFrameworksNCAP

Publishing year:
2021

DOWNLOAD

2

¡Gracias! - Thank you!

Marco Duran marco.duran@un.org

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

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Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

NCAP Methodology: Supporting Cooling Action at a 'National' Level

PURPOSE: A holistic but modular 'guidemap' for the development of National Cooling Action Plans that –

- Drives integrative action across multiple sectors of cooling and considers access to cooling for all
- Sets direction and actionable targets for addressing access to cooling while reducing its environmentally harmful impacts & maximizing the socio-economic benefits

DESIGN: Recognizing the diverse needs and context across countries, the Methodology is:

- Highly customizable to a country's priorities and capacities
- A process that is within the reach of most countries TODAY and can enable immediate and prioritized action towards climate-friendly cooling
  - Not a prescriptive approach; not a modeling framework

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Underlying Characteristics of the Methodology

To support its objectives, two foundational characteristics are imbued into every step of the Methodology:

1. Adaptability is critical.

- Methodology provides guidance while affording NCAP development teams high levels of discretion and flexibility to adapt to countries' unique context and needs

2. Simplification and prioritization are important.

- The methodology has to be simple and logical; enabling countries to prioritize (and/or phase out) the steps based on their resource availability/constraints
- Data collection has to be kept simple; excessive data requests can overwhelm the stakeholders and add unnecessary complexity (even resistance!)

Methodology Underscores an Integrated Approach to Addressing Cooling

An Integrated Approach to address cooling should be the norm, and calls for:

- First, reduce the cooling loads to the extent possible
  - Such as, through thermally efficient building design and construction, and passive cooling practices in case of the building sector
- Then, serve the cooling loads efficiently & with low-climate impact
  - Such as, with appropriate and efficient cooling equipment and solutions that use environment-friendly refrigerants to deliver the required amount of cooling with less energy and lower overall emissions
- And, optimize the cooling operations and behaviors
  - Such as, through good O&M practices, user adaptations etc. to ensure that cooling is delivered only to where and when it is needed

Right-size the demand for cooling and optimize the supply of cooling; apply both strategies in conjunction

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

The NCAP Development Process

STAGE I: CONTEXTUAL ASSESSMENT & PLANNING

STAGE II: COOLING DEMAND ASSESSMENT

STAGE III: SYNTHESIS & NCAP CREATION

* NCAPs Data Collection Framework

STEP 1

COUNTRY-CONTEXT MAPPING

High-level mapping of cooling landscape using existing data & knowledge

STEP 2

NCAP PLANNING AND PRE-WORK

Establishing core guiding components of the development process, such as broad priorities, key stakeholders, and engagement and governance structures

* NCAPs Data Collection Framework

STEP 3

SECTOR-WISE CURRENT AND FUTURE COOLING DEMAND ASSESSMENT

Conducting thorough data-driven assessments of the current and future cooling demand for each of the chosen cooling sectors

STEP 4

SECTOR-SPECIFIC RECOMMENDATIONS & SOLUTIONS

Identifying solutions and future pathways for each of the cooling sectors using the sector-wise analysis

STEP 5

INTEGRATION

Consolidating sector-specific assessments into a cohesive cooling assessment; identifying cross-sectoral synergies

STEP 6

DEVELOPMENT OF NCAP RECOMMENDATIONS

Developing and prioritising NCAP recommendations; mapping the expected impact of NCAP recommendations

STEP 7

NCAP REPORT & IMPLEMENTATION GUIDANCE

Creating an actionable NCAP report, embedded with an implementation and governance framework

MULTI-STAKEHOLDER COLLABORATION

Multi-stakeholder & collaborative development – right from the start

- Mechanisms for effective inter-government and triple-sector engagement
- Importance of a nodal/coordinating entity that owns and drives the process

NCAP development team

Researchers and analysts

Government entities

Private sector & industry

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Integrated Approach to Policymaking Essential

Why Integrated policymaking:

- Synergistic dovetailing of ongoing and emergent public policies and programs either laterally through parallel ministries and departments or vertically through different tiers of government[1]
- Helps align objectives, sets in powerful integrative effects –– such that whole is greater than the sum of parts
- Includes actors beyond the government––Triple Strength Leadership:
  - The public sector, the private sector, and the academic/non-profit sector will need to work in tandem and with equal enthusiasm if non-trivial challenges such as reaching net-zero GHG emissions by 2050 have to be met. [2]

1 - Meijers, E. and Stead, D., 2004. Policy integration: what does it mean, and how can it be achieved? A multi-disciplinary review. In: Berlin Conference on the Human Dimensions of Global Environmental Change: Greening of Policies – Interlinkages and Policy Integration. [online] Available at: http://userpage.fu-berlin.de/ffu/akumwelt/bc2004/download/meijers_stead_f.pdf
2 - Lovegrove, N. and Matthew Thomas, M., 2013. Triple-Strength Leadership. Harvard Business Review, [online] Available at https://hbr.org/2013/09/triple-strength-leadership

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

I. Contextual Assessment & Planning

Data Collection Framework
- Country Context Mapping

STEP 1

COUNTRY-CONTEXT MAPPING

- Socio-economic growth drivers for cooling demand
- International/ national targets and commitments
- Comprehensive view of policies & programs related to Cooling
- Other factors: technology & market trends, manufacturing
- Resources, capabilities and knowledge-base
- Assessing impacts: Electricity and GHG; socio-economic

STEP 2

PLANNING AND PREWORK

- Identifying nodal government entity
- Multi-stakeholder engagement structure/process
- NCAP development team, team-governance & collaboration model, timeline

Intended outcomes:

- *Informs priorities; Highlights potential gaps & opportunities; Catalyzes synergies; Guides next steps*
- *Establishes the board contours and key stakeholders for the country's NCAP development*

II. Cooling Demand Assessment

Data Collection Framework
- Space cooling in buildings
- Food and healthcare cold-chains
- Mobile AC
- Industrial process cooling
- Access to cooling

STEP 3

SECTOR-WISE CURRENT AND FUTURE COOLING DEMAND (BAU & INTERVENTION SCENARIOS)

- Setting the baseline: thorough data-driven assessment of the current cooling demand
- Future growth projections: Business-as-usual & Intervention scenarios
- Foundational logic/assumptions behind the key sector-wise recommendations

STEP 4

SECTOR-SPECIFIC RECOMMENDATIONS & SOLUTIONS

- Derive meaningful recommendations to address the cooling growth in the sector
- Prioritize actions: ease of implementation, impacts/benefits
- Consider synergies with existing policies & programs

Intended outcomes:

- *Baseline for the Country's cooling demand (and impacts)*
- *An informed view onto the impacts of the future growth, the 'cost of doing nothing' (BAU growth)*
- *Sector-specific priorities, including quick and high-impact interventions, and the strategic longer-term interventions*

III. Synthesis and NCAP Document

STEP 5

INTEGRATION

- Aggregation of the sector-specific analysis into cohesive country-wide view of cooling
- Identifying cross-sectoral and cross-functional synergies for accelerated action

STEP 6

DEVELOPMENT OF NCAP RECOMMENDATIONS

- Development and strategic prioritization of NCAP recommendations
- Mapping the expected impact of the NCAP recommendations

STEP 7

NCAP REPORT & IMPLEMENTATION GUIDANCE

- Creating a 'live' and actionable NCAP report
- Embedding an implementation and governance framework into the NCAP

Intended outcomes:

- *Alignment among key stakeholders and government entities*
- *'Big' goals of the NCAP*
- *An actionable roadmap that has the 'ownership' and a governance structure for guiding and monitoring future actions*

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Cooling Demand Assessment for NCAP Development

(Using Data Assessment Frameworks)

What is cooling demand assessment?

- Data-intensive and analytical step of the NCAP development process
- A thorough data-driven assessment of the current and future
  - Cooling demand (met, unmet, and total cooling demand)
  - Cooling energy consumption
  - Refrigerant consumption
  - Greenhouse gas (GHG) emissions from cooling
- Informs
  - Sector-specific priorities including quick and high-impact interventions in the short-term
  - Strategic interventions in the longer-term

Key definitions

- Met cooling demand: Cooling delivered through mechanical means
- Unmet cooling demand: Cooing demand not served because of lack of access to cooling

NOTE: The reliable quantification of the unmet cooling needs is a challenging task where modelling capabilities are required. Therefore, this cooling demand assessment utilises indicators to assess the lack of access to cooling to help estimate, to the extent possible, the country's unmet cooling demand.

- Total cooling demand: Met cooling demand + unmet cooling demand (estimated to the extend possible)
- Future growth scenarios
  - Business as usual scenario: Projects how the current cooling demand will evolve based at the ongoing level/pace of effort
  - Intervention scenario: Projects how the current cooling demand will evolve based on an accelerated level/pace of effort

Robust data is key but not a show-stopper

- Availability of good quality and enough data is a common challenge
- Leverage government databases, international publications, market reports, etc.
- Close data gaps using logical assumptions and expert interviews
- Periodically revise the cooling demand assessment as new data become available

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Cooling demand assessment is Stage II in the NCAP development methodology

STAGE I: CONTEXTUAL ASSESSMENT & PLANNING

STAGE II: COOLING DEMAND ASSESSMENT

STAGE III: SYNTHESIS & NCAP CREATION

* NCAPs Data Assessment Framework

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High-level mapping of cooling landscape using existing data & knowledge

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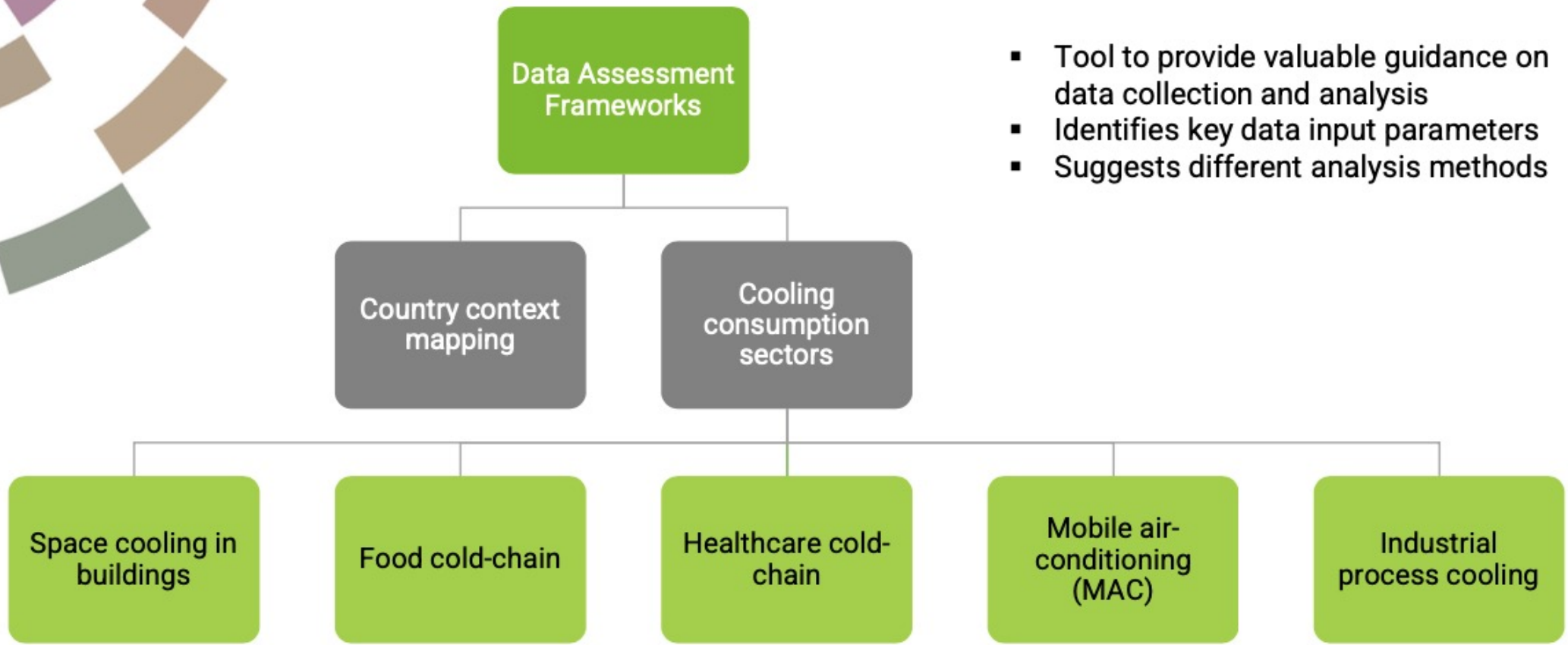
MULTI-STAKEHOLDER COLLABORATION

Introducing Data Assessment Frameworks



- Tool to provide valuable guidance on data collection and analysis
- Identifies key data input parameters
- Suggests different analysis methods

NOTE: Frameworks for space cooling in buildings, food cold-chain, and healthcare cold-chain provide high-level guidance on the unmet cooling demand

How to use the Data Assessment Frameworks

- Frameworks are 'directional', not 'instructional'
  - Include flexible features to suit a country's capacities, needs, and contexts
- Use them in combination with the detailed steps described in the NCAP Development Methodology
- Not a modelling exercise

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Sector-wise current and future cooling demand assessment

Activity 1: Map sector considerations

Main elements

- Identify sector growth drivers
- Map prevalent technologies
- Map current policies and programmes

Activity 2: Select sector objectives

Main elements

- Lay out sector objectives of the data assessment exercise

Activity 3: Decide what to calculate

Main elements

- Select data outcomes

Activity 4: Decide how to calculate

Main elements

- Conduct a broad assessment of the available data, computational resources, and domain expertise available
- Select data analysis pathway/s depending on the above

Activity 5: Identify and collect input data

Main elements

- Identify and collect the input data for the chosen analysis pathway

Activity 6: Estimate the *Baseline*

Main elements

- Estimate the baseline rigorously

Activity 7: Project future growth scenarios

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Example: Data Analysis Pathways for Space Cooling in Buildings

What to calculate

How to calculate →

A. COOLING APPLIANCE STOCK

- **A.1:** Bottom-up approach using cooling equipment sales data
- **A.2:** Top-down approach using building stock data and penetration of cooling equipment

B. ANNUAL DEMAND-SIDE ENERGY CONSUMPTION

- **B.1:** Bottom-up approach using stock utilisation factor, cooling capacities, energy efficiency, and runtime

C. ANNUAL REFRIGERANT CONSUMPTION

- **C.1:** Top-down approach using refrigerant production/import data reported by the country's Ozone Cell to the Montreal Protocol
- **C.2:** Bottom-up approach using refrigerant-related specifications of cooling equipment, and refrigerant-related servicing practices

D. ANNUAL GHG EMISSIONS

- **D.1 for indirect GHG emissions:** Converting energy consumption to GHG emissions using conversion factors such as grid carbon factor, emission intensity of fuels
- **D.2 for direct GHG emissions:** Rule of thumb on the ratio of indirect and direct GHG emissions
- **D.3 for direct GHG emissions:** Bottom-up approach using refrigerant leakage rates during operation and end-of-life of equipment

E. ASSESSING THE SECTOR'S UNMET COOLING DEMAND

- **E.1:** Penetration of cooling appliances including room AC, fans, and air coolers to serve as a proxy for assessing the lack of access to cooling
- **E.2:** Using air-conditioning as a proxy (and the only) thermal comfort solution to meet the cooling demand
- **E.3:** Empirical formulae published in journal papers and other credible research publications
- **E.4:** Energy modelling

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Example: Sector Orientation: Food Cold-chain

Sector description

- Chain of logistics activity to service the market connectivity of perishable products from the production stage to consumers

Sector mapping

- Production: Hydro cooling, ice cooling
- Sorting/grading/packaging: Precooling units, milk cooling units
- Processing: Cooling system in processing plants
- Storage: Cold storages, ripening chambers, controlled atmosphere rooms
- Transportation: Reefer vehicles, refrigerated containers, insulated milk tanker vans
- Retail/Hospitality: Deep freezer, visi-cooler, remote condensing unit, supermarket
- Domestic use: Domestic refrigerators, freezers

Considerations

- Import and export market for agriculture, dairy, meat, and fish
- Consumption behaviour in the country dominated by local markets OR fair share of local markets and organised retail OR dominated by organised retail

Key data indicators

- Local production and import of various food products
- Current food cold-chain infrastructure
- Existing food loss due to lack of cold chain
- Energy efficiency indicators

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MULTI-STAKEHOLDER COLLABORATION

Sector-specific Recommendations & Solutions and their Integration

Main elements

- Synthesize analysis to derive meaningful solutions and future pathways
- Prioritise recommendations based on:
  - Ease of implementation
  - Potential impacts and co-benefits
  - Synergies with existing government policies and programmes

Example: Space Cooling in Buildings

Suggested interventions

- Policy formulation & implementation
  Example: Leverage MEPS & S&L of cooling equipment to influence consumers purchasing decisions
- Market enablers & supporting instruments
  Example: Capacity building and training of HVAC and refrigerant service professionals
- Innovative financial instruments
  Example: Incentive mechanisms to shift the market toward energy efficient, and low-climate impact space cooling

Integration

- Consolidation of sector-specific assessments into an aggregated nationwide cooling assessment
- Relative importance of sectors in terms of demand growth and opportunities for interventions
- Opportunities for cross-sectoral synergistic actions

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans




THANK YOU

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Satish Kumar

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Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Round table: Sharing experiences on NCAP development and implementation

Mesa redonda: Intercambio de experiencias sobre el desarrollo y la implementación de los PANE

Lorena Alarcón

Ozone Unit Consultant
Climate Change Office
Ministry of the Environment
Chile

Elías Gómez

National Ozone Layer Protection Program Coordinator
Ministry of the Environment and Natural Resources
Dominican Republic

Anabel Tatis

Project Coordinator, UNDP
National Ozone Unit
Ministry of Health
Panama

Moderator

Miriam Hinostroza

Head, Global Climate Action Unit
UN Environment Programme

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PANAMA

Suministro de Frío Energéticamente Eficiente y Respetuoso con el Clima

a través de los Planes de Acción Nacionales de Enfriamiento

COORDINACIÓN INTERINSTITUCIONAL

	PRIMER PILAR: GESTIÓN Y NORMATIVA	SEGUNDO PILAR: EFICIENCIA ENERGÉTICA	TERCER PILAR: SOSTENIBILIDAD AMBIENTAL	CUARTO PILAR: SERVICIOS DE RAC
				
EJES TEMATICOS	1.1 Gobernanza 1.2 Normas y estándares 1.3 Tecnología alternativas 1.4 Monitoreo, verificación y aplicación	2.1 Equipo eficiente 2.2 Diseño de edificaciones 2.3 Preferencias y patrones de consumo 2.4 Enfriamiento distrital	3.1 Inventario Nacional GEI 3.2 Etiquetado ambiental 3.3 Recuperación y reciclaje de refrigerantes 4.4 Disposición y reciclaje de equipos 4.5 Divulgación	4.1 Inclusión 4.2 Capacitación 4.3 Certificación 4.4 Cadena de frío 4.5 Aire acondicionado móvil (MAC)

- **Diseño**
- **Metodología**
- **Estructura**
  - **Pilar N°1**

VINCULACIÓN CON POLÍTICAS Y PLANES NACIONALES

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Suministro de Frío Energéticamente Eficiente y Respetuoso con el Clima

a través de los Planes de Acción Nacionales de Enfriamiento

Estrategia Nacional de Refrigeración y Acondicionamiento de Aire en la República Dominicana

ONU programa para el medio ambiente 50 1972-2022

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PNUD

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KIGALI COOLING EFFICIENCY PROGRAM

Antecedentes

La República Dominicana por medio de su Estrategia Nacional de Desarrollo (END) aspira lograr que para el año 2030 su economía territorial y sectorialmente sea:

a) integrada,
b) innovadora,
c) diversificada,
d) plural,
e) orientada a la calidad
f) ambientalmente sostenible,
g) y que el uso de la energía deba ser eficiente y ambientalmente sostenible.

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a través de los Planes de Acción Nacionales de Enfriamiento

La Republica Dominicana tiene provisto que la temperatura tendrá una incidencia significativa sobre la demanda de energía por el aumento del calor extremo que aumentará la demanda de refrigeración y el acondicionamiento de aire, poniendo aún más presión sobre el suministro eléctrico.

Ante esta situación se ha concebido la realización de un “Pacto Eléctrico” a fin de establecer acuerdos políticos y sociales para orientar futuras reformas del sector entre los cuales está la inclusión de la variable climática en la planificación económica y operacional del sistema eléctrico y la formulación de un programa nacional de eficiencia energética y de ahorro de energía.

Se propicia además una transición energética y otras innovaciones sociales y tecnológicas, orientadas a la descarbonización de la economía, para lograr la sostenibilidad del sistema energético, fortalecer el aparato productivo nacional y alcanzar un mayor estado de bienestar para la población.

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a través de los Planes de Acción Nacionales de Enfriamiento

La República Dominicana ha buscado soluciones al cambio climático por que en su primera Contribución Determinada a nivel Nacional (NDC) el país mostró una importante oportunidad de mejorar el desempeño del sector eléctrico por medio de la participación e integrando inversiones en proyectos de aprovechamiento de las fuentes renovables (eólica, solar y biomasa) como apoyo fundamental al cumplimiento de su presupuesto de carbono.

El sector eléctrico que representa el 30% del total de emisiones de GEI del país (Se prevé un aumento de más de un 35%, pasando de 11 M tCO_2eq en el 2018 a 18 M tCO_2eq en el 2030) es fundamental para alcanzar las metas de reducción de emisiones establecidos en Contribución Determinada Nacionalmente.

Por lo que con los compromisos asumidos por el país al ratificar el Acuerdo de París y la Enmienda de Kigali, ha permitido empoderar a los actores clave del sector, tanto públicos como privados, para impulsar medidas que puedan adoptarse a corto y mediano plazo para impulsar estrategias integrales de mitigación, adaptación y financiamiento.

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Existen varias barreras que dificultan las inversiones en tecnologías ecológicas y de eficiencia energética en República Dominicana, como se describe en la evaluación del mercado. Estos incluyen, para los clientes / inversores:

1. Mayores costos iniciales. Los sistemas de refrigeración de eficiencia energética pueden ser más costosos que otros equipos convencionales e ineficientes.

2. Conocimiento limitado de los beneficios de la eficiencia energética que resulta en altos riesgos percibidos.

3. Las oportunidades de inversión de EE (por ejemplo, los sistemas de enfriamiento de EE) compiten con otras oportunidades de inversión que se perciben con un mejor perfil de riesgo-retorno.

4. Capacidad crediticia limitada o acceso a financiamiento.

5. Falta de confianza en el desempeño de tecnologías nuevas y desconocidas.

6. Falta de confianza en los servicios postventa y en la responsabilidad del proveedor.

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Acciones estratégicas del país

1. Estándares Mínimos de Rendimiento Energético (MEPS), etiquetado de equipos y regulación de refrigerantes. Los estándares y requisitos de etiquetado (S&L, por sus siglas en inglés) para equipos de aire acondicionado y equipos de refrigeración en República Dominicana deben tener como objetivo el permitir que solo existan productos eficientes y de bajo Potencial de Calentamiento Global (PCM) en el mercado, así como fomentar productos con un alto rendimiento a través del etiquetado e incorporar las mejores prácticas y uso de estándares comprobados. Estas regulaciones contribuyen a acelerar la transición del mercado dando a los consumidores más opciones, reduciendo barreras comerciales y desbloqueando economías de escala para hacer que los productos sean más asequibles.

2. Programa de Monitoreo, Verificación y Cumplimiento del Mercado. La meta del MVE es asegurar la integridad de los programas de transformación del mercado, por medio de la minimización de los costos negativos asociados a la venta de productos que no cumplen con los requerimientos después de la entrada en vigor de una regulación.

3. Sistema de registro del producto. establecer un sistema nacional de registro de productos (SNRI) para capturar información sobre todos los productos vendidos en el mercado dominicano Con la finalidad de establecer y mantener políticas y programas impactantes, el gobierno de República Dominicana necesita datos sólidos y actualizados, más allá de los hallazgos de la evaluación original del mercado.

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4. Desarrollo de un esquema de procesamiento y reciclaje al final para manejar los refrigeradores y equipos de aire acondicionado al final de su vida útil. Es crucial identificar un modelo de negocio a largo plazo (por ejemplo, incluir una tarifa de reciclaje en la compra de nuevos productos) para evitar la proliferación de un mercado secundario.

5. Establecimiento una combinación inteligente de financiamiento público y privado para acelerar el financiamiento de refrigeración y acondicionamiento de aire limpio y eficiente La financiación privada se puede utilizar para financiar proyectos de refrigeración de eficiencia energética comercial, industrial y residencial, mientras que la financiación pública puede utilizarse para financiar proyectos públicos y para disminuir riesgos de inversión,

6. Programas de intercambio o reemplazo de equipos ineficientes antes del final de su vida útil con equipos significativamente más eficientes y respetuosos con el clima.

7. Ejecución de una campaña de sensibilización para sectores específicos

Conclusión

El consumo de energía de los sistemas de refrigeración y acondicionamiento de aire constituye una proporción sustancial de los gastos operativos para muchas empresas en República Dominicana.

Las inversiones en eficiencia energética representan una oportunidad de ahorro considerable, así como también en modernización.

Las Inversiones bien estructuradas en nuevas tecnologías de refrigeración eficientes presentan rendimientos atractivos, con el potencial de generar flujo de efectivo y la recuperación de la inversión en un período de tiempo razonable, al tiempo que mejoran la productividad y reducen el impacto en el medio ambiente.




¡Gracias!

COORDINADOR NACIONAL PROGRAMA PROTECCIÓN DE LA CAPA DE OZONO, MINISTERIO DE MEDIO AMBIENTE Y RECURSOS NATURALES, REPÚBLICA DOMINICANA

Elías Gómez

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Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Mainstreaming the National Cooling Plans into National Strategies

Integración de los Planes Nacionales de Enfriamiento dentro de las estrategias nacionales

Kasper Koefoed

Programme Advisor, Montreal Protocol Unit. Regional Technical Advisor, Chemicals and Waste, Nature, Climate and Energy (NCE) UNDP

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

UNDP advocates for the regeneration of the ozone layer and thus the protection of human health, but also aiming to achieve significant reductions in greenhouse gas emissions, industry innovation, job creation, and more-efficient use of energy, while reaching the Sustainable Development Goals.

UNDP has partnered with KCEP to support the following countries to develop, and complete their National Cooling Plans (NCPs):

- **Chile, Colombia, Costa Rica, Cuba, Mexico, Panama, Trinidad & Tobago, Uruguay**
- **Ghana, Lebanon, Nigeria**
- **Bangladesh, Philippines, Sri Lanka**

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Content

- ✓ **Cooling sector**
- ✓ **Policy framework**
- ✓ **Climate Promise**
- ✓ **Policy Framework in Action**

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Cooling sector: a multitude of purposes, essential to our daily lives…

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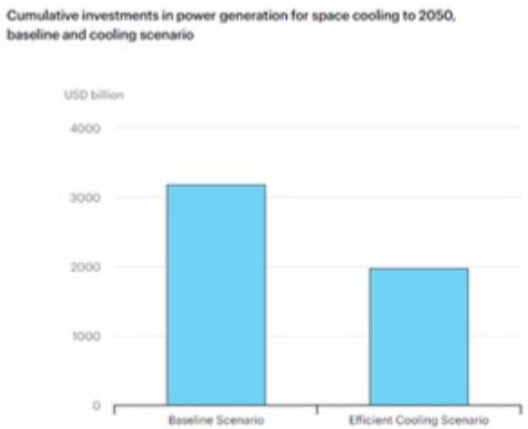
Cooling sector: energy perspectives

IEA´s "Future of Cooling" Report:

- **By 2050, around 2/3 of the world's households could have an air conditioner.**
- **Without action to address energy efficiency, energy demand for space cooling will more than triple by 2050.**
- **Cooling will drive peak electricity demand, especially in hot countries.**

The Efficient Cooling Scenario reduces investment and running costs by USD 3 trillion between now and 2050



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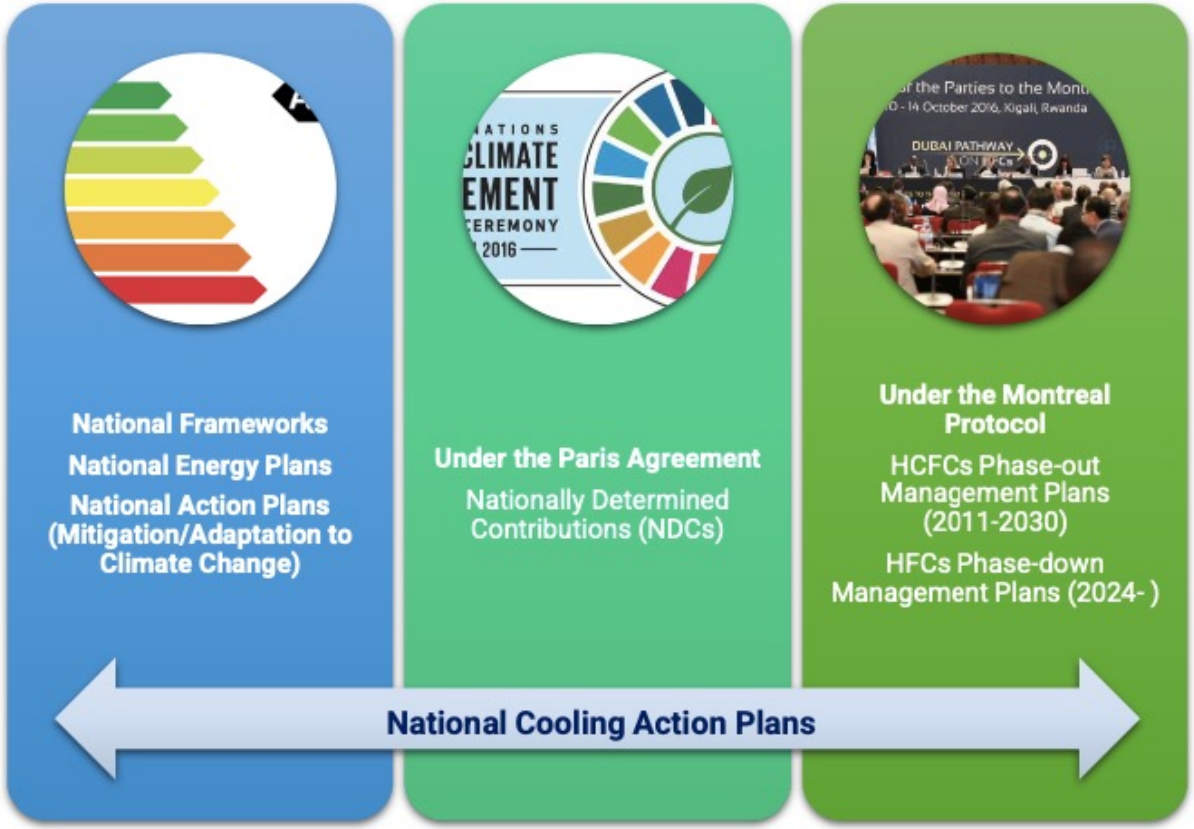
Policy framework



Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

https://www.undp.org/climate-promise

Total number of countries	Least Developed Countries (LDCs)	Small Island Developing States (SIDS)	Higher Emitters
119	39	28	14

The Challenge

The science is clear: countries have a short window of time to take the urgent action necessary to limit average global temperature rise to a safer 1.5 °C. Global warming is already causing long-lasting changes to our climate system, and threatens lives and livelihoods around the world. We have a once-in-a generation opportunity - through the Paris Agreement on Climate Change and Sustainable Development Goals (SDGs) - to ensure a more sustainable, equitable and prosperous future for all.

UNDP's Climate Promise

The Climate Promise is UNDP's response to this challenge. Tackling the climate crisis requires that all countries make bold pledges under the Paris Agreement to reduce emissions of the greenhouse gases (GHG) that cause global warming. The Climate Promise is our commitment to ensure that any country wishing to increase the ambition of their national climate pledge is able to do so.

Our Promise support draws upon UNDP's extensive portfolio of expertise across priorities such as energy, forests, water, resilience, agriculture, health, youth, finance, governance, gender equality and green jobs. It also builds upon UNDP's established track record in supporting governments to discuss, design and deliver climate action under Paris Agreement.

UNDP has agreed Climate Promise workplans with 119 countries – making it the world's largest offer of support for the enhancement of countries' climate pledges.

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Vision: A World on a Path to Zero-Carbon and Climate-Resilient Development

Ambition

Strengthen Climate Pledges towards the SDGs

CLIMATE PROMISE UNDP

UNDP Climate Promise | Over 100+ countries enhance NDCs, with demonstrated increase in ambition

2019 - 2021

Acceleration

Scale up Climate Action to deliver Impact on the Ground

Sustainable cities | 20 major cities become greener, more resilient & prosperous

Clean energy | 100 m more people have reliable and affordable access to clean energy

Nature-based solutions | 100 m ha of degraded land restored

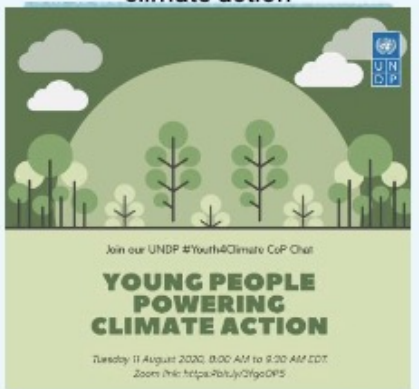
Adaptation & Resilience | 200 m people with capacities to cope with climate change

Climate Change Portfolio | 140+ countries with access to USD 3 billion+ in grant financing (vertical funds, bilaterals)

2019 - 2030

Mobilization

Engage all actors to collectively take ambitious climate action



MISSION 1.5°

Equator Prize 2020

Outreach | Making all voices heard, including youth, women, and marginalized communities

2019 Onwards

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

How does it work?

CLIMATE PROMISE UNDP

UNDP's Climate Promise provides five key technical areas of support to reduce emissions, increase the resilience to climate impacts and support sustainable development priorities.

- Build political will & societal ownership at national & sub-national levels
- Review, align, & update existing targets, policies & measures
- Incorporate new sectors and/or greenshouse gases
- Access costs and investment opportunities
- Monitor progress & strengthen transparency

We work together on climate action across government and society to advance equality, tackle poverty and strengthen social and environmental sustainability.

https://mission1point5.org/

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Partnerships – *External (Acceleration)*

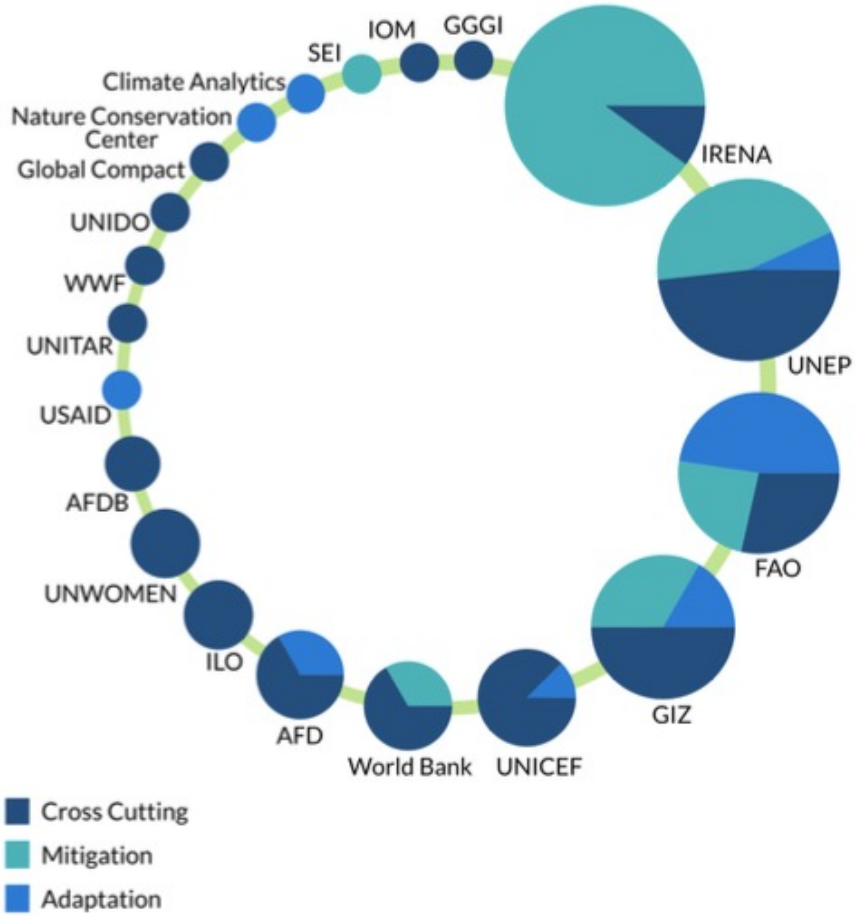
UNDP's Climate Promise is being delivered in close collaboration with over 35 key strategic partners.

Global level: joint advocacy and knowledge sharing, leveraging the NDCP and UNDP's longstanding networks

Country level: joint support for enhancement across range of thematic areas (e.g. energy, adaptation, agriculture, forest and land use, MRV)

Leverage existing partnerships and coalitions:

- SG's Climate Change Core Group, Youth Advisory Group
- NDC Partnership & CAEP
- Biodiversity COP Strategy & Nature for Life
- Coalition of Finance Ministers for Climate Action
- A&R Coalition, High Ambition Coalition, Race to Resilience, etc.
- SG's call to Action on Human Rights Working Groups



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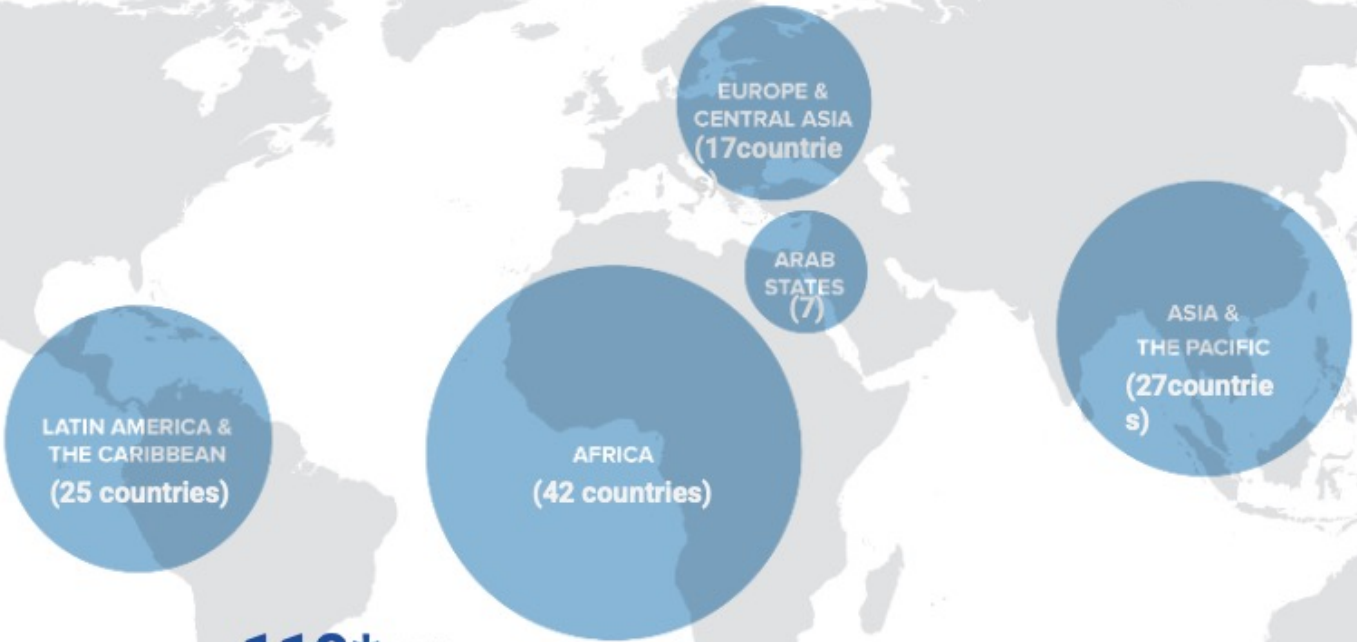
Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

CLIMATE PROMISE UNDP

A SAFE AND SUSTAINABLE FUTURE THROUGH BOLD CLIMATE ACTION

World's largest offer of support to countries on NDC enhancement

LATIN AMERICA AND THE CARIBBEAN (25)
Antigua and Barbuda
Argentina
Bahamas
Belize
Bolivia
Chile
Colombia
Costa Rica
Dominica
Dominican Republic
Ecuador
El Salvador
Grenada
Guatemala
Guyana
Haiti
Honduras
Mexico
Panama
Paraguay
Peru
St. Vincent and Grenadines
Suriname
Trinidad and Tobago
Uruguay



118* Climate Promise Countries

- **28** Small Island Developing States (SIDS)
- **14** Higher Emitters
- **38** Least Developed Countries (LDCs)
- **42** Countries in fragile settings

- ✓ **28% of the Global greenhouse gas emissions.**
- ✓ **65% of all the developing countries that presented their NDCS prior to March 2021.**
- ✓ **80% of the developing countries that presented increased ambition in their Climate Action Plans in the Leaders Climate Summit in April 2021.**
- ✓ **70% of the developing countries that participated in the Leaders Climate Summit, April 2021.**

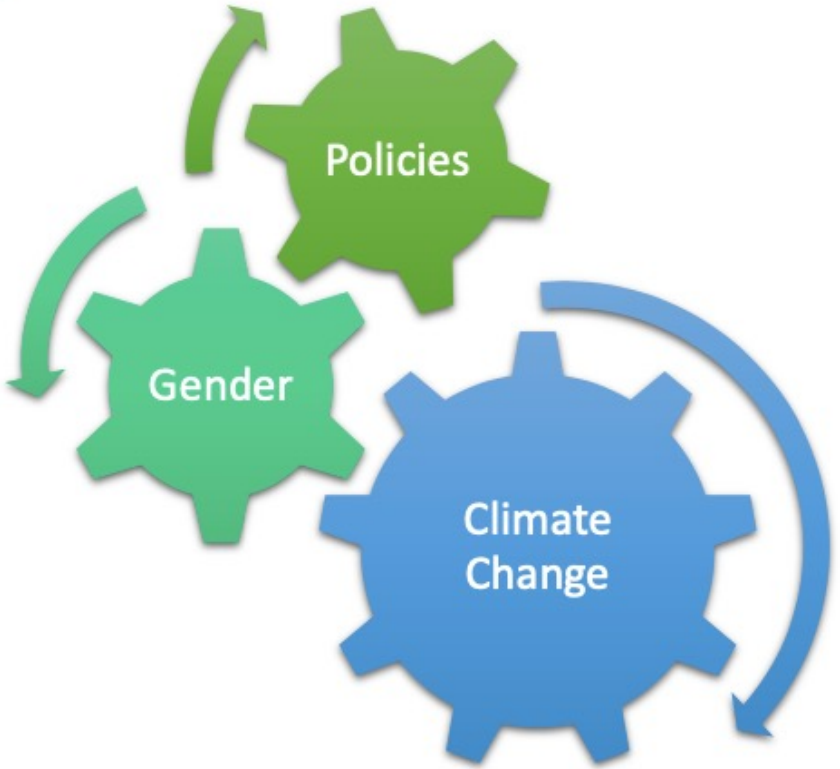
**This excludes Kosovo, which is also receiving support under the Climate Promise despite being a non-UNFCCC party.*

Sverige Sida aecid

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

The gender element must be recognized and addressed in national climate policies and planning processes.

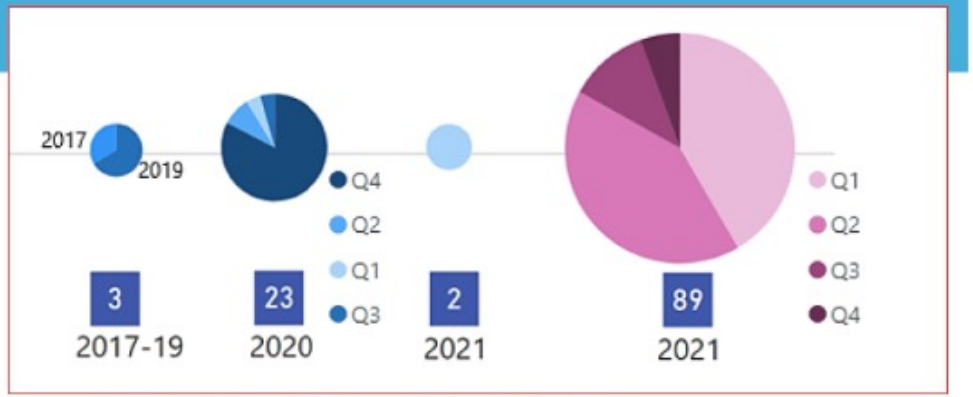
The NDC Support Program and the gender team of the UNDP Regional Center for Latin America and the Caribbean have been supporting the country offices.



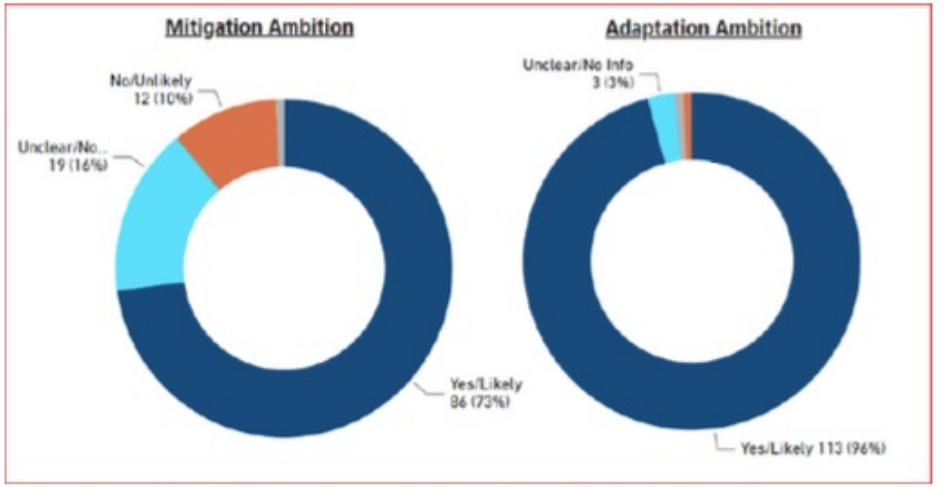
Gender Service Plan for Climate Promise Countries.

Important Results

- ✓ All countries that paticipate in the Climate Promise should present their new NDCs before the COP26
- ✓ The majority of the countries in the Climate Promise are increasing the ambition in their NDCs on both Mitigation and Adaptation (or has the intention to do so).
- ✓ Many countries have faced delays because of the COVID-19 Pandemic
- ✓ There is a better reference to existing National Strategies in the updated NDCs.
- ✓ Increased focus on Planning and Implementation
- ✓ Improved quality of the information.



Countries' submission timelines / update April 2021



Ambition in Climate Promise countries / update 31 March 2021
(including both submitted NDCs and intentions for planned submissions)

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Policy Framework in Action

Trinidad & Tobago:

- **Stand alone document, National Policy level.**
- **Approved in 2019, under implementation (Phase 1) aligning Montreal Protocol activities with a GEF project on energy efficiency in RAC Sector.**

Lebanon:

- **Stand alone document, Guidance to Policy Makers**
- **Approved in 2021, raise ambition in energy performance for AC and Refrigeration applications, look into a long-term alignment with EU standards (revisions every 3 or 5 years).**

Panama:

- **Sub-set of the National Energy Plan (2015-2050), approved in 2021;**
- **Identifies specific challenges and opportunities for energy efficiency actions under the Cooling Sector, aligning the National Energy Plan to the Montreal Protocol´s Management Plans.**

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Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Climate promise in action

Countries can amplify the impact of NDCs by coordinating their actions on improving cooling efficiency with the implementation of the Kigali Amendment of the Montreal Protocol.

UNDP recommends that the countries consider taking a combined approach to address cooling under their NDCs. .

Ghana's Intended NDC (INDC) specifically includes the phase out of fluorinated-gases (HFC-22 and HFC-410) from stationery air-conditioners in its mitigation targets.

Lebanon is finalizing the development of its National Cooling Plan (NCP) with support from UNDP and plans to include the measures identified in the NCP in its second NDC.

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

PREGUNTAS & RESPUESTAS

QUESTIONS & ANSWERS

Moderator

Paloma Somohano

Montreal Protocol Unit
UNDP

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling Action Plans

Closure

Cierre

Gustavo Máñez

Climate Change Coordinator for LAC
UNEP

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En colaboración con : U4E United for Efficiency

KIGALI COOLING EFFICIENCY PROGRAM

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Marissa Gowrie
Oficial de Ozono, **Trinidad y Tobago**

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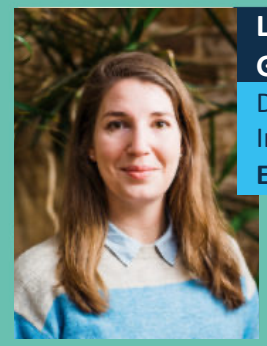
Especialista Internacional, **PNUD**



Larissa Gross
Directora de Investigación, **E3G**

Suministro de Frío

2 de Septiembre **(9-11am GMT-5)**

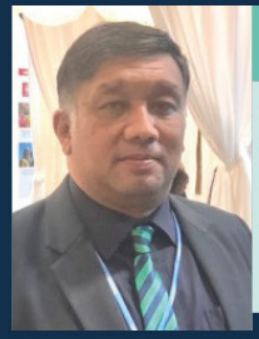
Talleres para la creación de capacidades para ALC

Energéticamente Eficiente y Respetuoso con el Clima a través de los Planes de Acción Nacionales de Enfriamiento

Jessica Brown
Asesora Estratégica, **Clean Cooling Collaborative**

Johannes Heister
Especialista Superior en Medio Ambiente, **Banco Mundial**

Omar Villacorta
Especialista Senior en Mercados Financieros, **Banco Interamericano de Desarrollo**



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Dra. **Jeannette Sanchez**
Directora, División de Recursos Naturales, **CEPAL**

Suministro de Frío Energéticamente Eficiente y Respetuoso con el Clima

a través de los Planes de Acción Nacionales de Enfriamiento

Donnalyn Charles

Coordinadora del Protocolo de Montreal para el Caribe
ONU Programa para el Medio Ambiente

Marco Pinzón

Coordinador del Protocolo de Montreal para América Latina
ONU Programa para el Medio Ambiente

Cartera del Protocolo de Montreal en ALC

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Antecedentes HCFCs

Decisión XIX/6 (2007) MOP

…"9. Alentar a las Partes a que fomenten la selección de alternativas de los HCFC que limitan a un mínimo las repercusiones en el medio ambiente, en particular las repercusiones en el clima, y que cumplen otros requisitos sanitarios, de seguridad y económicos;…

…11. Convenir en que, cuando elabore y aplique los criterios de financiación de proyectos y programas, el Comité Ejecutivo…, dé prioridad a los proyectos y programas eficaces en función de los costos que se centren, entre otras cosas, en:…

…b) Los sustitutos y alternativas que limitan a un mínimo otras repercusiones en el medio ambiente, incluido el clima, teniendo en cuenta el potencial de calentamiento de la atmósfera, el uso energético y otros factores de importancia;…

Los Planes Nacionales de Eliminación de HCFCs - HPMPs

Estrategia de reducción de consumo de HCFC (5, 10 años o total), reconociendo que en la mayoría de los países en desarrollo, el sector de servicios en refrigeración es el mayor consumidor. Alienta las sinergias con otros MEAs (CC y Químicos)

Estructura:

- Políticas y regulaciones relacionadas con HCFCs, i.e. sistema de licencias de importación/exportación
- Datos de consumo de HCFC por cada uno de los sectores
- Estrategia de reducción/eliminación a 5 o 10 años/a 2030 por etapas (tramos) describiendo las actividades/proyectos*, costos incrementales, cronograma, impacto en el medio ambiente, incluido el clima, y las modalidades de implementación.

- Regulaciones, incentivos legales y económicos
- Programas de entrenamiento a oficiales de aduana y kits de identificación
- Capacitación y certificación de técnicos en refrigeración
- Asistencia técnica (conversiones, R&R, introducción de alternativas, etc)
- Actividades de sensibilización pública a audiencias específicas.

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Guías para el desarrollo de los HPMPs del FML

- Desarrollo de incentivos para alentar a los propietarios de equipos para mejorar el desempeño y el uso de energía.
- Medidas para… facilitar la introducción de alternativas energéticamente eficientes y amigables con el clima.
- Impacto potencial del HPMP, …considerando…, eficiencias energéticas, …

HPMPs en la región

Caribe
Antigua and Barbuda, Bahamas Barbados, Belice, Dominica, Granada, Guyana, Haití, Jamaica, Santa Lucía, San Cristóbal y Nieves, Surinam

América Latina
Bolivia, Chile, Colombia, El Salvador, Guatemala, Honduras, México, Nicaragua, Paraguay, Perú, Rep. Dominicana

Antecedentes HFCs

Decision XXX/5
"…5. Solicitar al Comité Ejecutivo del Fondo Multilateral que aproveche su análisis en curso de proyectos de prestación de servicios a fin de determinar las mejores prácticas, la experiencia adquirida y nuevas oportunidades para el mantenimiento de la eficiencia energética en el sector del mantenimiento, y gastos conexos;…"

Actividades Habilitantes de la enmienda de Kigali
Apoyo para la ratificación de la enmienda de Kigali en los países en desarrollo y/o prepararlos para los requerimientos institucionales, de legislación, de reporte de datos, entre otros, una vez hayan ratificado (18 meses).

Elegibilidad de actividades relacionadas con eficiencia-energética:

- Desarrollo y aplicación de regulaciones para evitar la penetración en el mercado de equipos energéticamente ineficientes de RAC
- Promoción y acceso a tecnologías energéticamente eficientes
- Capacitación y certificación enfocada en estándares de seguridad, …, para el mantenimiento y mejoramiento de la eficiencia energética.

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Actividades Habilitantes en la región

Caribe
Bahamas, Dominica, Guyana, Santa Lucía, San Cristóbal y Nieves, Surinam

América Latina
Bolivia, Chile, Guatemala, Honduras, México, Paraguay, Rep. Dominicana

Experiencias con KCEP

- Reunión conjunta de Oficiales de Ozono y de Oficiales de Energía de America Latina, Guatemala, 2018
- Reunión conjunta de Oficiales de Ozono y de Oficiales de Energía del Caribe, Ecuador, 2018

Otros productos y Herramientas de AcciónOzono

- Refrigerant Literacy (E, S, F)
- Refrigerant Management (E)
- EE in Refrigeration and Air-Conditioning (E)
- Good Servicing Flammable Refrigerants Quick Guide
- RAC Technicians Videos (Short and long versions)
- Refrigerant Management University Course
- Update on New Refrigerants Designations and Safety Classifications
- Refrigerant Cylinder Colours - What has changed?
- Cold Chain Technology Briefs

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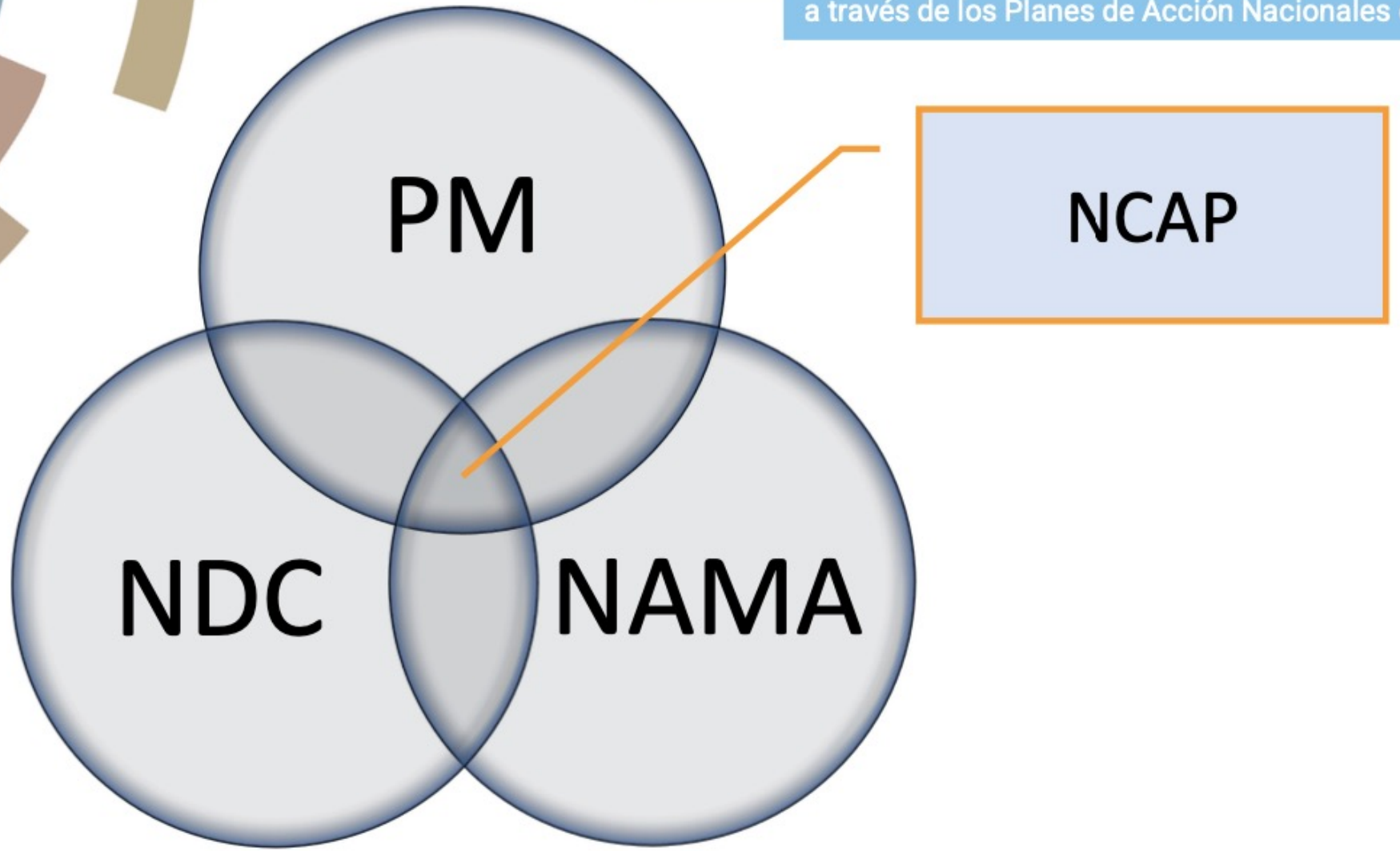
Decisiones recientes del Comité Ejecutivo relacionadas con HFCs y Eficiencia Energética

- Estudio sobre la evaluación de la EE en el sector de servicios en refrigeración Doc 86/13
- Guías en borrador de la reducción de HFCs Decision 86/93: descripción de políticas, regulaciones, o estándares relevantes relacionados con la EE (voluntario)

Suministro de Frío Energéticamente Eficiente y Respetuoso con el Clima

a través de los Planes de Acción Nacionales de Enfriamiento



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Comentarios Finales

- Experiencia y capacidad nacional en el sector de RAC.
- Experiencia del PNUMA, agencias hermanas y demás instituciones del PM en el sector de refrigeración y aire acondicionado.
- Capacidad de convocatoria de actores principales para lograr objetivos comunes a nivel nacional, regional y global.
- Se inicia una etapa de control de HFCs junto la eliminación de HCFCs: desafíos y oportunidades.
- Seguir explorando oportunidades de sinergias (KIPs, EE) dentro del marco de los mandatos respectivos.

Suministro de Frío Energéticamente Eficiente y Respetuoso con el Clima

a través de los Planes de Acción Nacionales de Enfriamiento




¡Gracias!

ONU PROGRAMA PARA EL MEDIO AMBIENTE

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HFC phase-down strategies and the role of the servicing sector

Estrategias de eliminación de los HFC y el rol del sector de servicios

Dr. Marissa Gowrie

Deputy Environmental Manager/National Ozone Officer
Ministry of Planning and Development
Trinidad and Tobago

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Trinidad & Tobago

- Capital: Port-of-Spain
- Population ~ 1.4 Million
- Part of the Caribbean Sub-Region (Article 5)
- Major Exports: Petroleum gas, refined petroleum, Ammonia
- Major Imports: Crude petroleum, iron ore, machines and metals

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Central America and the Caribbean

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Status of Ratification of Trinidad and Tobago

Trinidad and Tobago became signatory to the Montreal Protocol on August 28 1989, and was the first country of the Caribbean Commonwealth to become a party to this multilateral environmental agreement

Trinidad and Tobago operates under paragraph 1 of Article V of the Montreal Protocol

Trinidad and Tobago has since ratified all the Amendments to the Montreal Protocol (1st Caribbean Country and 21st in the Globe to ratify Kigali Amendment)

Montreal Protocol Country Programme for T&T

T&T has met all obligations under the MP and has phased out CFCs two (2) years ahead of schedule

Currently implementing our HPMP and has met and surpassed all targets to date. Phase out includes HCFC phase out in the RAC and Foam Manufacturing Sectors

All refrigerant imports and exports are controlled via a licensing and quota system administered by Ministry of Trade, Customs and Excise Division and the Trinidad and Tobago Bureau Standards

National compulsory refrigerant labelling standards also implemented

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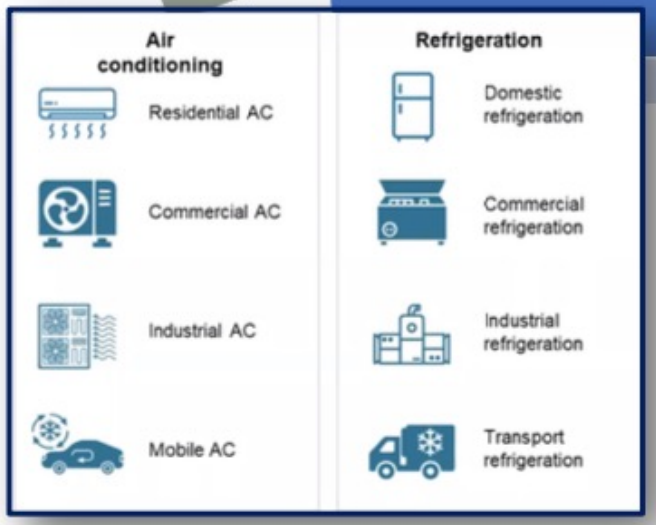
The Growth of the RAC Industry and the HFC Phase Down

As elsewhere, the air conditioning and refrigeration sector in Trinidad and Tobago continues to blossom

In T&T, the supply chain of refrigerants, equipment installation and post-sale servicing for air conditioning and refrigeration is made up of a complex network of manufacturers, suppliers, maintenance companies and servicing technicians.

Like many other developing countries, due to many technical and economic barriers, high-GWP HFCs substances have been widely adopted as an interim leading solution in the HCFCs phase-out process.



OPPORTUNITY

Leapfrogging of Technology

CHALLENGES

- Technology availability and transfer
- Variety of refrigerant on the market
- Knowledge and information sharing
- Economies of scale are a disadvantage in any attempts to promote alternative refrigerant in a meaningful way
- Disposal
- COVID 19

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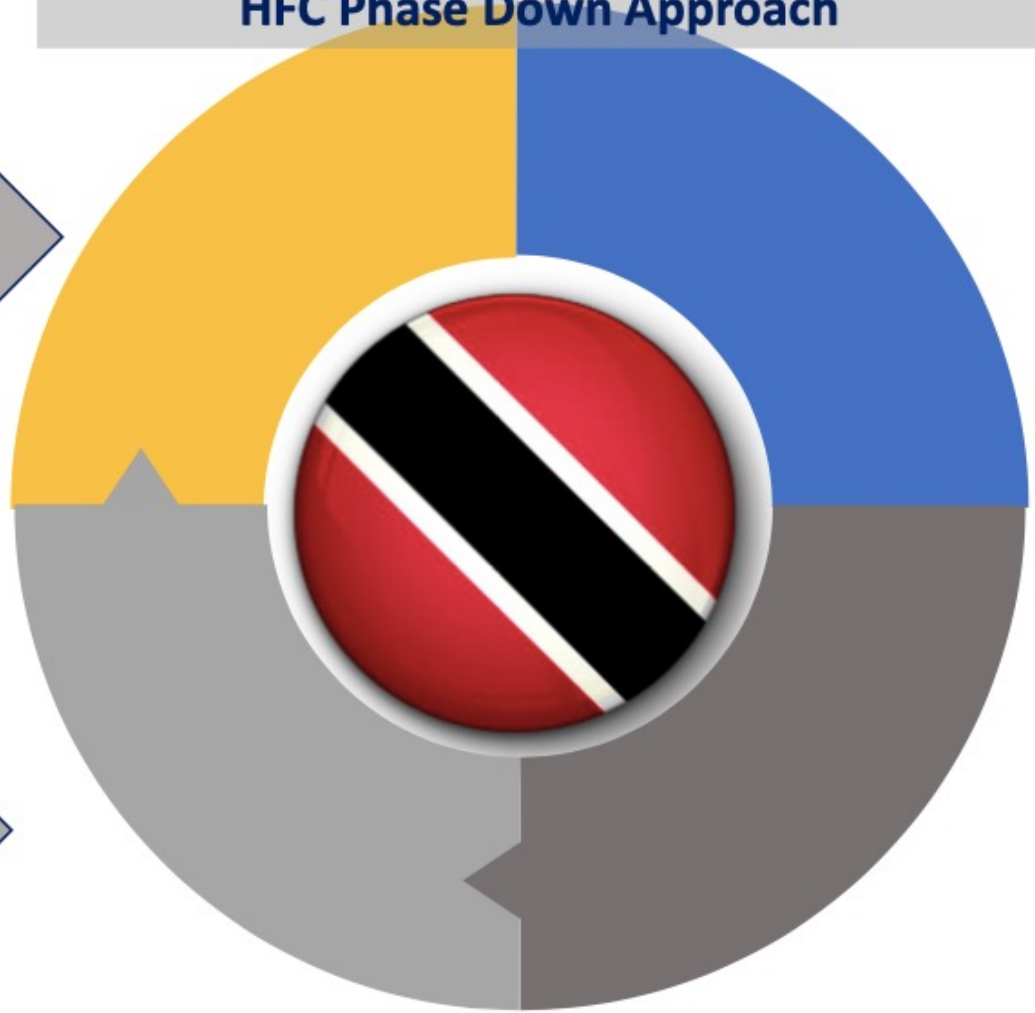
HFC Phase Down Approach



POLICY & REGULATORY FRAMEWORK

- National Guidelines for RAC Sector
- National Cooling Strategy
- Compulsory labelling standards for refrigerant cylinders and equipment.
- Import and Export Licensing System
- Cabinet Appointed Multi-stakeholder Committee

RAC EQUIPMENT & SERVICING SECTOR

- Promotion of HC (HFC Alternative) Technology
- Ensuring Technicians are properly Tooled
- RAC Professional Certification Scheme

EDUCATION & TRAINING

- Upgraded RAC Training Schools
- Current Syllabus
- Webinars/Seminars
- Blended Learning

SYNERGISING PROJECTS

- GEF 6 Project -Energy Efficiency through the Development of Low-Carbon RAC Technologies in Trinidad & Tobago

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National Cooling Strategy Projects

DEVELOPMENT OF POLICY INSTRUMENTS TO OPTIMISE SUSTAINABLE COOLING

- Implementation of MEPS
- RAC market Assessment
- Financial Mechanism Assessment
- Public procurement policies

SUPPORT FOR REFRIGERANT REPLACEMENT & SHIFT TO RENEWABLE ENERGIES:

- The introduction of not-in-kind Technologies and services.
- Mechanism for CaaS

CAPACITY BUILDING & PARTNERSHIP INITIATIVES TO MITIGATE THE CLIMATE IMPACT OF REFRIGERANTS

- Training and capacity building
- Outreach & Communication
- Harnessing of opportunities for regional collaboration

MONITORING, VERIFICATION & ENFORCEMENT TO IMPROVE ENERGY & RESOURCE EFFICIENCY

- Ensure milestones and targets are upheld.
- Continue to phase down ODS
- Ensure uptake of low carbon energy efficiency technologies.

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GEF 6 Project -Energy Efficiency through the Development of Low-Carbon RAC Technologies in Trinidad & Tobago

The overall goal of this four year project is to create a sustained market change towards the adoption of low-carbon Refrigeration and Air Conditioning (RAC) technologies in Trinidad and Tobago.

National Priorities

Promote energy efficiency and the efficient use of resources for increasing energy security through alternative energy technologies, renewable energy and encouraging private sector investment in areas such as low carbon technologies; and

Develop climate change adaptation and mitigation strategies to safeguard those most affected.

Promote a resilient whole-of-government approach to disaster risk management and strengthen capacities to reduce risk and build community resilience to disasters especially within vulnerable groups;

The project has been organized into the following components:

- Strengthening the national policy, regulatory and institutional frameworks for Energy Efficiency (EE) gains for RAC technologies
- Enhancing the investment path along the RAC market chain
- Implementation of an investment portfolio on replacement of energy intensive technologies; and
- Development of an information strategy to share knowledge gained, lessons learned and best practices developed.

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NEXT STEPS

Continue to strengthen legal and policy framework

Position market to facilitate transition to natural refrigerant and related technology

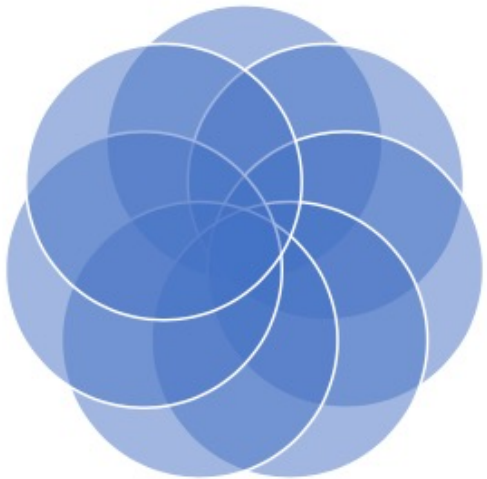
Ensure RAC sector is properly tooled and trained to maintain adaptability

Sustained public and sectoral awareness

Strengthen public-private partnerships

Keep open channels of communication and ensure succession planning

Continue regional and international collaboration



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ORGANIZATION: NATIONAL OZONE UNIT TRINIDAD AND TOBAGO
MINISTRY OF PLANNING AND DEVELOPMENT

Name Dr. Marissa Gowrie- Deputy Environmental Manager/National Ozone Officer

e-mail: marissa.gowrie@planning.gov.tt

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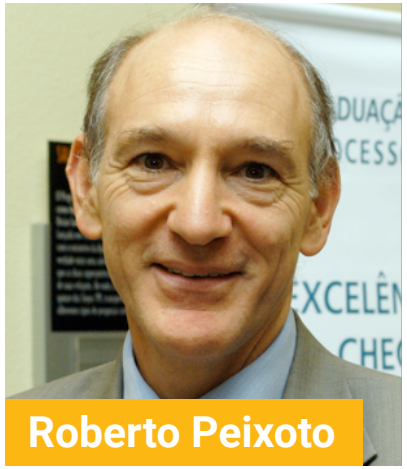
Energy Efficiency Policy: MEPs and labels

Política de eficiencia energética: MEPs y etiquetado



Roberto Peixoto

International Expert
UNDP

The main policy measures aimed directly at raising the energy efficiency of ACs and other cooling equipment are labelling programmes and MEPS

What are MEPS - Minimum Energy Performance Standards?

- *Minimum Energy Performance Standards (MEPS) specify the minimum level of energy performance that appliances, lighting and electrical equipment must meet or exceed before they can be offered for sale or used for commercial purposes.*

What is Energy Labelling?

- *A mandatory legal framework under which manufacturers are obliged to indicate the relative energy performance of their products on a label placed on the product*
- *The purpose of energy labelling is to provide consumers with information on the relative energy performance of different product choices available on the market, so that energy efficiency can be considered as part of the buying decision*
- *Energy efficiency classes are defined for specific products*

MEPS – Current situation

- Most of the leading energy-consuming countries have already introduced MEPS for ACs.
- Overall, 80 countries now use MEPS and labelling regulations to improve the efficiency various types of refrigerators and air conditioners (source: IEA).
- 85% of the ACs sold worldwide in 2016 covered by MEPS

MEPS – Current situation

- In general, MEPS are most stringent in the richest countries and are weakest or absent in hot or humid countries with rapidly growing demand for ACs. In addition, they are not always mandatory.
- In countries where energy costs are low, MEPS is fundamental to promote energy efficient equipment
- Some countries have adopted relatively weak standards out of misplaced concern for the effect on national manufacturers.
- Several A5 countries have established and/or revised MEPS in the last years (Brazil, Morocco, Kenya, Rwanda,…)

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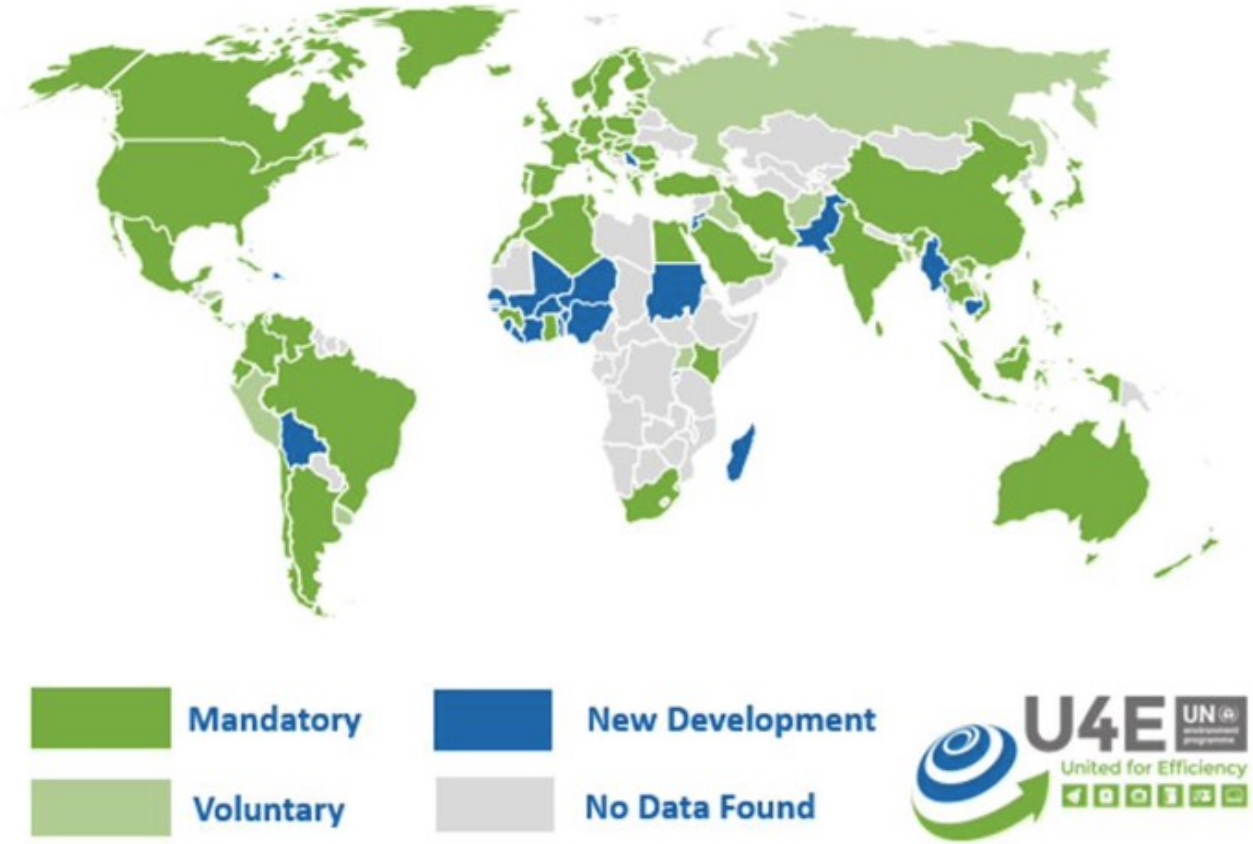
ACs MEPS & Labels Status



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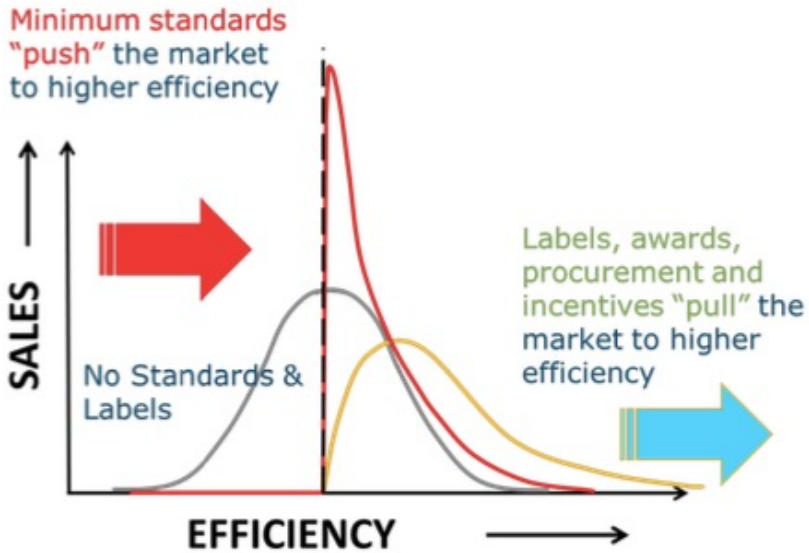
Implementing MEPS and labelling programs

- Rigorous analysis may be needed when setting MEPS as several EE levels need to be evaluated compared with the baseline.
- MEPS can be powerful and cost-effective instruments for pushing the market towards higher-efficiency products by removing inefficient equipment from commerce
- MEPS can encourage manufacturers to improve the efficiency of their products
- MEPS needs to be strengthened over the years in accordance to the assessed rate of technological innovation for a given product



Impact of MEPS

- In the European Union, the combination of the MEPS (Ecodesign regulation) and the energy label was expected to save about 175 million tonnes of oil equivalent (Mtoe) by 2020.
- The measures also benefit consumer with an estimated saving of 456 € on their yearly household energy bill.

Methodology for implementing MEPS

- In MEPS making processes, EE policymakers compare the increase in purchase price for higher efficiency equipment against the energy savings to the consumer.
- They then set the MEPS level to “pay-back” the average consumer within a specified time period.

Methodology for implementing MEPS

- The procedure used in Europe was to calculate the least life cycle cost (LLCC) of the product.
- LLCC: combination of all costs to the consumer (initial purchase price, installation, and operating expenses) throughout the life of the product to ensure that products fulfilling the MEPS are the most economical over the lifetime of the product.
- A crucial aspect in the calculation of the LLCC is the assumed lifetime of the equipment.

Additional focus

- Historically, MEPS solely focused on the reduction of energy consumption. However, MEPS can also include other design requirements that address other quality aspects of the regulated products. (Question of HFC refrigerants)

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Synchronisation among countries

- Measurement standards: only one test is required and used across different markets, hence avoiding test duplication
- Relieves nations from the burden of developing new standards and allows them to leverage existing resources from other nations.
- Increases the comparability of products among regions and the transparency of the market

Labelling and MEPS - Product Testing

- The measurement of energy performance of refrigeration equipment constitutes the base for the EE rating.
- Measurement methods need to be replicable, repeatable and reliable without being too costly for the verification and compliance authorities. They can be adapted to better reflect local climates and user behaviour.
- In countries that do not have the appropriate infrastructure for product testing to verify product compliance, they can make use of existing accredited regional testing facilities

Final Remarks - MEPS

- Limit the maximum energy consumption of equipment
- Require political and stakeholder commitment
- Evolve with innovation
- Developing countries
  - Many don't have MEPS for RACHP, or MEPS set a lower standard
  - As consequence - RACHP equipment has lower EE than developed countries
  - Require accredited laboratories to assess EE of equipment
  - Adoption of strengthened MEPs would drive EE of equipment

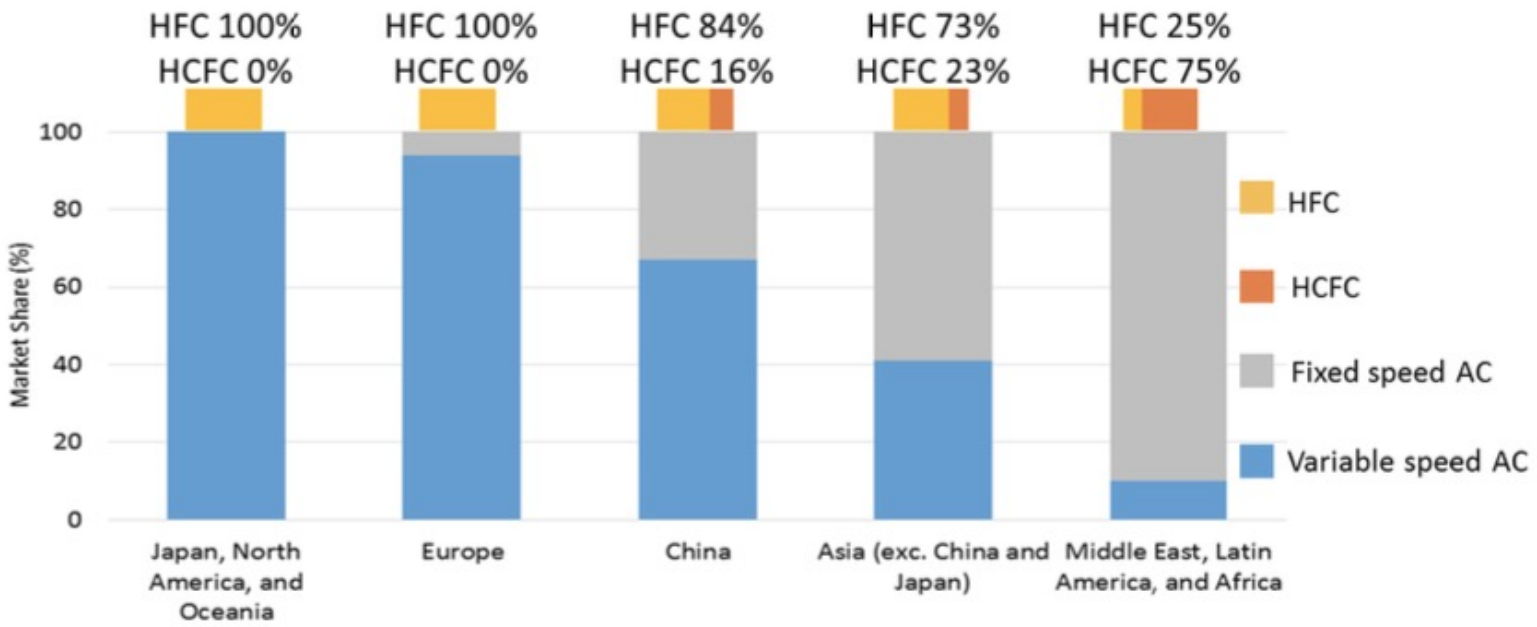
Final Remarks

- The basic formula for an effective policy suite to drive energy efficiency improvements includes a combination of regulation, information and incentives.
- Standards need to be expanded and strengthened as quickly as possible across all countries.
- MEPS need to be continually strengthened, and the knowledge of these future, strengthened can provide manufacturers with the security that there will be a return on their investments in R&D
- Policies should account for capacity building, including appropriate training and support for standards development, and testing lab implementation and certification

Final Remarks

- During the HFC phase-down, EE can be improved by implementing and/or updating national regulations such as MEPS
- A5 parties using HCFC technologies, and with low EE or no MEPS regulations, have an opportunity to improve the EE of equipment.

- Example of the correlation between EE policies and market dominance of inefficient and HCFC-22 AC equipment



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Sources of Information

- IEA (2018). The Future of Cooling, May 2018. Available at: http://www.iea.org/cooling/
- TEAP EETF (2018). Volume 5: Decision XXIX/10 Task Force Report on issues related to energy efficiency while phasing down hydrofluorocarbons. Available at: https://ozone.unep.org/sites/default/files/2019-04/TEAP_DecisionXXIX-10_Task_Force_EE_September2018.pdf
- TEAP EETF (2019). Volume 3: Decision XXX/5 Task Force Report on Cost and Availability of Low-GWP Technologies/Equipment that Maintain/Enhance Energy Efficiency. https://ozone.unep.org/system/files/documents/TEAP-TF-DecXXX-5-EE-september2019.pdf
- Wiel S and McMahon JE, 2005. "Energy-Efficiency Labels and Standards: A Guidebook for Appliances, Equipment, and Lighting" 2nd Edition, Collaborative Labeling and Appliance Standards Program (CLASP). Available at https://cloudfront.escholarship.org/dist/prd/content/qt01d3r8jg/qt01d3r8jg.pdf.
- UNEP, 2017a. TEAP WG report under Decision XXVIII/3 "Energy Efficiency". Available at http://conf.montreal-protocol.org/meeting/mop/cop11-mop29/presession/Background-Documents/TEAP-EEWG-Report-october2017.pdf
- Minimum Energy Performance - an overview _ ScienceDirect Topics. Available at https://www.sciencedirect.com/topics/engineering/minimum-energy-performance

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Round table: Access to Finance for NCAP Development and Project Implementation

Mesa redonda: Acceso a financiamiento para el desarrollo y la ejecución de proyectos de los PANE

Jessica Brown

Strategic Advisor
Clean Cooling Collaborative
(formerly K-CEP)

Johannes Heister

Senior Environmental Specialist,
Natural Resources and Blue Economy Global Practice (ENB)
World Bank

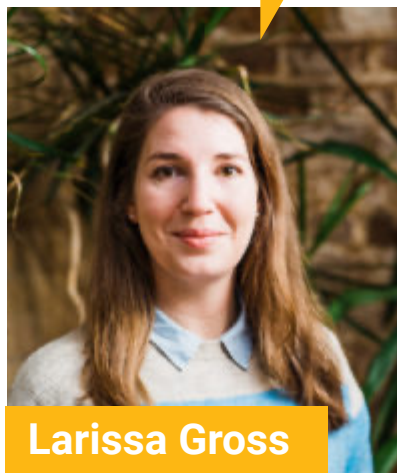
Omar Villacorta

Financial Markets Senior Specialist, Connectivity, Markets and Finance Division
Inter-American Development Bank

Sabin Basnyat

Senior Energy Efficiency Specialist
Division of Mitigation and Adaptation
Green Climate Fund

Moderator



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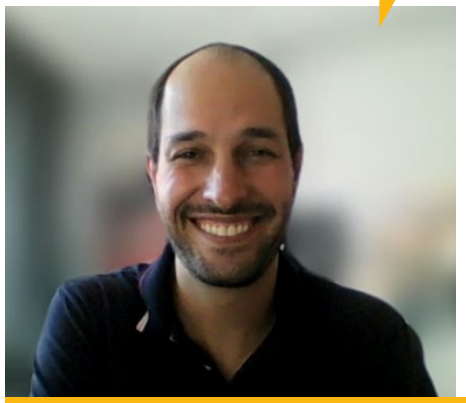
PREGUNTAS & RESPUESTAS

QUESTIONS & ANSWERS

Moderator



Carlos Andrés Hernández

Montreal Protocol Unit
UNDP

Final remarks and closure

Comentarios finales y clausura

Jeannette Sánchez

Director, Natural Resources Division, UN ECLAC

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