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Side Event

Delivering Energy Efficient and Climate Friendly Cooling through National Cooling (Action) Plans NCAPs

Anderson Moreira do Vale Alves

Regional Coordinator, Asia-Pacific
Montreal Protocol Unit, Chemicals & Waste
United Nations Development Programme (UNDP)

The United Nations Development Programme

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, in 2018, has partnered with Clean Cooling Collaborative (former KCEP) to support the following countries to develop their NCAPs:

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

Cooling has become **part of our lifestyles**, and cooling is also essential in many aspects of modern life.

Promoting Sustainable Cooling is not a question choice.

Building sustainable cooling systems is a **matter of need**.

A Complex Policy Framework is required to address efficient cooling needs, but often these are stand-alone and may not “talk to each other”

National Frameworks

National Energy Plans

National Action Plans (Mitigation/Adaptation to Climate Change)

Paris Agreement

Nationally Determined Contributions (NDCs)

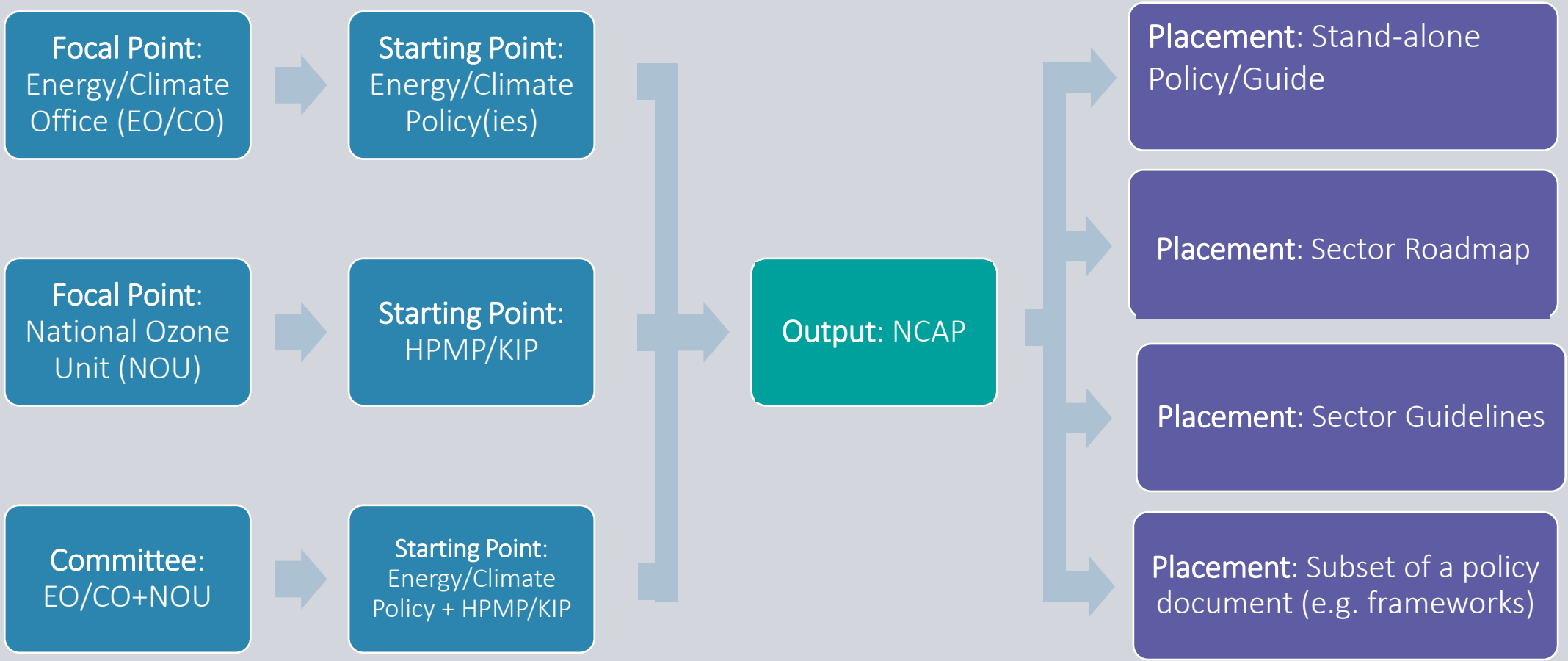
Montreal Protocol

HCFCs Phase-out Management Plans

HFCs Phase-down Management Plans

National Cooling Action Plans

Designing a Cooling Plan: where and how to start?



Developing a Cooling Plan: challenges faced

- There is no “one fits all” approach, final template or fixed methodology: countries should develop their NCAPs to meet their needs;
- NCAP Development Guidelines are important to support the work, but the developing process must be flexible to cope with the national scenario.
- The more comprehensive a NCAP is, the more complex it becomes, and: more stakeholders are needed for validation; more Government Officials need to endorse it.
- Cooling Plan methodologies, terminology and approaches should mind other MEAs, particularly to facilitate their inter-collaboration (e.g. inclusion into NDCs.)

NCAPs: Country Profile of Case Studies

Ghana:

- West African country
- Area of 239,000 km2
- Estimated population of 31 million,
- 57.3% urban and 42.7% rural.
- Annual population growth rate of 2.4 %
- 2020 consumption of 471,391 CO2-eq of HFCs
- 2020 consumption of 16 ODP tonnes of HCFCs.

Nigeria:

- West African country
- Area of 923,769 km2
- Estimated population of 211 million,
- 52% urban and 48% rural.
- Annual population growth rate of 2.5 %
- 2020 consumption of 2,620,048 CO_2-eq of HFCs
- 2020 consumption of 167 ODP tonnes of HCF

Lebanon:

- Middle Eastern country
- Area of 10,452 km^2
- Estimated population of 5.5 million,
- 88.6% urban and 11.4% rural.
- Annual population growth rate of -0.4 %
- 2020 consumption of 1,743,012 CO_2-eq of HFCs
- 2020 consumption of 35.1 ODP tonnes of HCFCs.

Trinidad & Tobago:

- SIDS in Southern Caribbean
- Area of 5,528 km2
- Estimated population of 1.4 million,
- 53.2% urban and 46.8% rural.
- Annual population growth rate of 0.3%
- 2020 consumption of 4,425,345 CO2-eq of HFCs
- 2020 consumption of 14.5 ODP tonnes of HCFCs.

Electricity demand for cooling

Ghana	The estimated combined annual electricity consumption by refrigeration and air-conditioning (RAC) appliances in 2017 is to be between 3260–3440 GWh, roughly 27% of total electricity consumption in the country
Nigeria	Electricity demand for ACs is estimated to be around 24 TWh in 2020.
Lebanon	The RAC sector uses 6,000 GWh (2018) in electricity consumptions, which is about 26% of Lebanon's total electricity demand.
Trinidad & Tobago	Residential and commercial cooling sector accounts for 1479 GWh, approx. 17% of total energy usage.

Minimum Energy Performance Standards

Ghana	The Energy Efficiency Standard and Labels for Room Air Conditioners was introduced in 2005 in the RAC sector, but need review and update.
Nigeria	Nigeria has existing MEPS for domestic refrigerators and ACs, but enforcement of MEPS is lacking and most of the products do not have the energy efficiency labels.
Lebanon	Not yet in place.
Trinidad & Tobago	No MEPS and labelling established for RAC appliances.

NCAPs: Case Studies main finding

In **Ghana**, energy demand for the RAC sector is estimated to triple by 2050 and corresponding GHG emissions will increase to 13 Mt CO2eq in 2050. Unitary ACs, MACs and Domestic Refrigeration are the major contributors to current/future total RAC emissions with the largest share (58%) being the split AC units.

In **Nigeria**, the stock of air conditioners is projected to increase from 8 million units in 2020 to 71.4 million units by 2050. Nigeria's increasing population and increasing access to electricity will result in a large market for air conditioners in the next 30 years.

Lebanon does not yet have a Minimum Energy Performance System (MEPS) and labelling system in place and the appliances in use have a low energy performance in comparison with other countries.

Trinidad and Tobago identified a need to improve institutional capacities on Cooling Efficiency matters so to remover barriers to MEPs and other Policies and energy subsides distort the market and undervalue Energy Efficiency Programmes.

NCAPs: Case Studies main findings

Ghana

Energy Efficiency Standard and Labels for Room Air Conditioners were introduced in 2005, but they have not been revised since.

New energy efficient technologies with low-GWP alternatives require capacity building and training actions on the installation, operation, maintenance, and safety issues so to assure maximum efficiency over their lifetime.

Nigeria

Existing MEPS for domestic refrigerators and ACs, but it was found during the market survey that enforcement of MEPS is lacking and most of the products do not have the energy efficiency labels.

Is recommended to enforce additional enabling policies and regulations to accelerate the market transformation

Lebanon

Appliances in use have a low energy performance in comparison with other countries. Without MEPS and labelling end-users are lacking clear guidance to energy-efficient appliances.

Development of MEPS and labelling systems should be a priority action, particularly for the domestic refrigeration and air conditioning subsector.

Trinidad & Tobago

Had no MEPS and labelling established, specific for RAC appliance.

Capacity geared towards the design and implementation of EE legislation, MEPs, labelling, data collection, verification, and enforcement activities. For the service sector, training actions on EE and low-GWP technologies.

NCAPs: Action Plans

Ghana

- Enforce MEPS and Labelling Schemes
- Deliver improved training and capacity building.
- Diversify funding and financial mechanisms for change.
- Improve regional collaboration.
- Align actions with Waste Management (refrigerants EOL, Waste to Energy, etc.)

Nigeria

- Improve MEPS, Labels, and Monitoring, Verification and Enforcement (MVE).
- Enact additional Enabling Policies and Regulations (updated MEPs,MRVs)
- Diversify funding and financial mechanisms for change.
- Continue to engage with stakeholders for cooperation.

Lebanon

- Develop MEPS and labelling systems and Safety Standards.
- Support local manufacturers to upgrade their testing capacity to comply with the new energy efficiency testing standards.
- Diversify funding and financial mechanisms.
- Carry on a stakeholders mapping to effect the change.

Trinidad & Tobago

- Develop Policy Instruments (MEPs, Labels, MEES, Public Procurement).
- Support refrigerant replacement as means to booster EE initiatives;
- Build national capacities n efficient cooling and create partnerships for change in the Cooling Sector
- Market monitoring and enforcement.

NCAPs and their Potential Mitigation Contribution

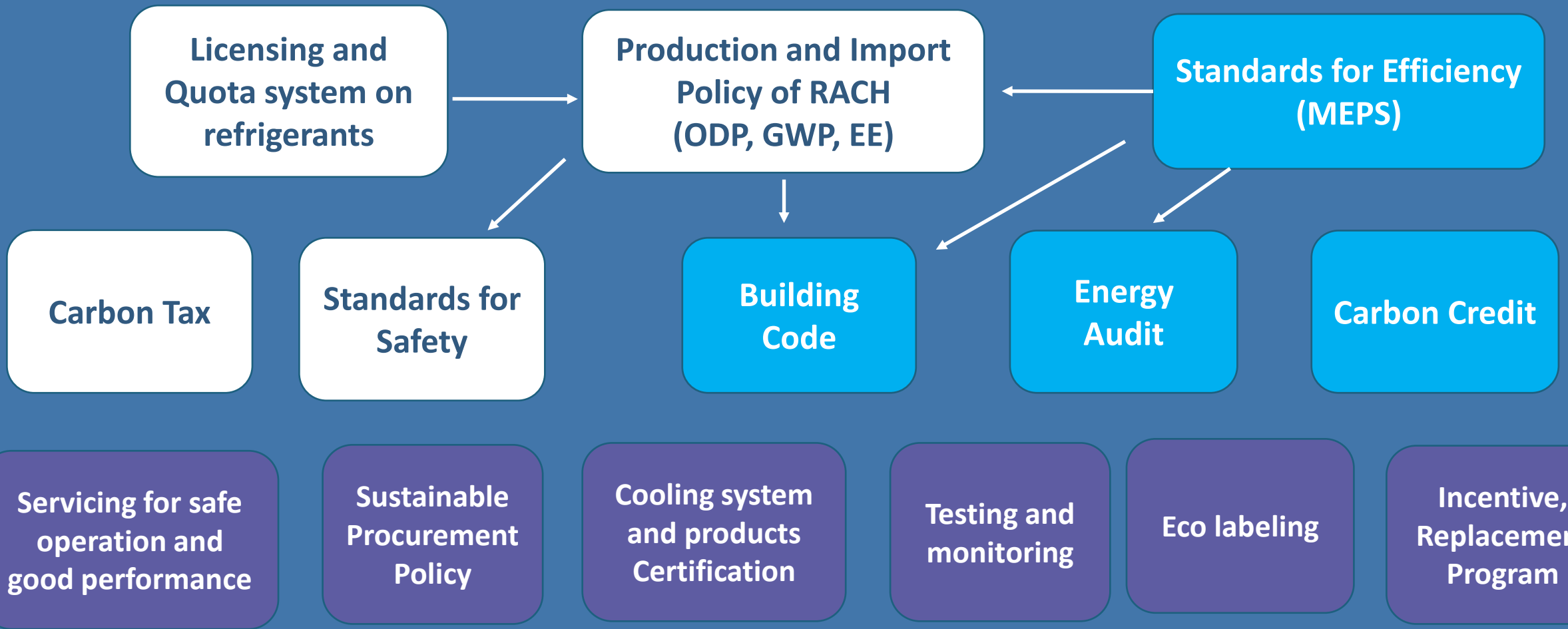
	Energy Savings (TWh)	To-be-Avoided MT CO2-eq emissions
Bangladesh	9.45	6.75
Chile	4.90	3.50
Cuba	3.15	2.25
Costa Rica	6.80	2.60
Ghana	4.20	4.30
Lebanon	3.10	3.20
Mexico	42.66	29.17
Nigeria	70.50	72.50
Panama	0.80	0.57
Sri Lanka	19.43	13.88
Trinidad and Tobago	1.60	1.20
	167	**140**

Once realized, the eleven NCPs supported by UNDP will cumulatively avoid over **140 MT CO2-equivelant emissions** and will save consumers over **$21.6 billion**

NCAPs: Overall Implementation Expectations

- NCAPs highlight the need for additional financial investments for cooling. In general, the challenges and market barriers facing the cooling sector can be categorized as economic, legal, and technical.
- Develop and access innovative financing models provide safety nets to cover uncertainties in lending risks from the bank's perspective and mitigate high upfront capital expenditure (CAPEX) risks from an investor's view.
- Need for technical assistance, build capacities beyond the Montreal Protocol compliance on consumption control but aligning it so Energy Policies so countries can implement their NCPs.
- Importance of building on existing initiatives and partnerships with governments, bilateral donors, vertical funds to initiated, replicate and/upscale successful interventions.
- Continue and strengthen the work with private sector, academia and CSOs to achieve multiple environmental and social benefits.

Policy framework for sustainable cooling



UNDP is ready to support!

- UNDP launched its new sustainable cooling offer aiming to promote sustainable cooling solutions through programmes supported by, but not limited to, the Multilateral Fund, GEF and other bilateral, private and philantropic donors.
- UNDP is ready to provide technical and financial support to countries to develop and implement their NCPs.
- UNDP promotes the development of systemic solutions in cold chain systems, energy-efficient buildings, district cooling and heating, among other measures such as MEPS and low-GWP alternatives
- Energy is also an important priority in UNDP's 2021-2025 Strategic Plan, where our focus is on increasing energy access for those furthest behind and expanding the use of renewable sources and energy-efficiency measures.
- UNDP is aiming to develop integrated programmes (Climate Promise and Sustainable Energy Hub) and enabling platforms (SDG finance, Innovation and Digital) can help to unlock innovation and scale up actions in the cooling sector

THANK YOU!

Montreal Protocol Unit / Chemicals & Waste (MPU)
Nature, Climate and Energy Group (NCE)
Global Policy Network (GPN)
Bureau of Programme and Policy Support (BPPS)

mpu.registry@undp.org