Side Event - 32nd Meeting of the Parties of the Montreal Protocol

Tackling the Cooling Challenge with National Cooling Action Plans

24 November 2020, 9:00 – 10:00 am CET

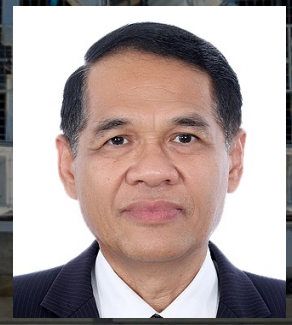
Dan Hamza-Goodacre
Non-Executive Director, K-CEP
COP26 Champions Team

Mazen Hussein
Head National Ozone Unit, Ministry of Environment, Lebanon

Brian Dean
Lead, Energy Efficiency and Cooling, SEforALL

Toby Peters
Professor, University of Birmingham

Ksenia Petrichenko
Economic Affairs Officer
UNESCAP



Pak Sokharavuth
Deputy Director General, General Directorate of Environmental Protection, Ministry of Environment, Cambodia

Sneha Sachar
Strategic Advisor
Alliance for an Energy Efficient Economy

Miriam Liliana Hinostroza
Head, Global Climate Action Unit, Energy & Climate Branch
UNEP

Laurie Goering
Climate editor, Thomson Reuters Foundation

Organised by:

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

KIGALI COOLING EFFICIENCY PROGRAM

Cool Coalition

COP12 // MOP32
ONLINE MEETING
23-27 NOV 2020

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Tackling the Cooling Challenge with National Cooling Action Plans

TIME	TOPIC	PRESENTER
9:00	Welcome and Overview of existing NCAPs	Dan Hamza-Goodacre, Non-Executive Director of K-CEP, Cooling Lead, COP26 Champions Team
Global National Cooling Action Plan Context		
9:05	The role of NCAPs in addressing development and climate needs	Mazen Hussein, Head National Ozone Unit, Ministry of Environment, Lebanon
9:10	Outline SEforALL needs assessment	Brian Dean, Lead, EE and Cooling, SEforALL
9:15	Linking NCAP to Cold-Chain enhancement needs	Toby Peters, Professor, University of Birmingham
Cool Coalition/K-CEP/UN ESCAP National Cooling Action Plan Methodology		
9:20	NCAP Methodology Introduction	Ksenia Petrichenko, Economic Affairs Officer, UN ESCAP
9:25	NCAP Development Methodology	Satish Kumar, President & Executive Director, AEEE. Sneha Sachar, Strategic Advisor, AEEE
9:35	Piloting the NCAP Methodology	Pak Sokharavuth, Deputy Director General, General Directorate of Environmental Protection, Ministry of Environment, Cambodia
9:40	Q&A	
9:55	Closing Remarks	Miriam Liliana Hinostroza, Head, Global Climate Action Unit, Energy & Climate Branch
10:00	Event ends	

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Tackling the Cooling Challenge with National Cooling Action Plans

Welcome and Overview of Existing NCAPs

Dan Hamza-Goodacre
Non-Executive Director, K-CEP
COP26 Champions Team

Tackling the Cooling Challenge with National Cooling Action Plans

The role of NCAPs in Addressing Development and Climate Needs

Mazen Hussein

Head National Ozone Unit, Ministry of Environment, Lebanon

Tackling the Cooling Challenge with National Cooling Action Plans

Outline of Sustainable Energy For All's Needs Assessment

Brian Dean

Lead, Energy Efficiency and Cooling, SEforALL

ACCESS TO COOLING | COOLING FOR ALL NEEDS ASSESSMENT

THREE COOLING FOR ALL - COOLING NEEDS

ISSUE: Typically discussions focus on projections for equipment sales, GDP and population without considering the full diversity of cooling needs that are necessary to provide access to sustainable cooling for all.

PRINCIPLE: In order for a country, city or community to ensure that the cooling needs of their population are met, they must first understand what those needs are.

APPROACH: Through assessment across all cooling needs, demand can be understood systemically and measured fully and a roadmap to delivering access to sustainable cooling for all can then be developed.

OPPORTUNITY: The **Cooling for All Needs Assessment** can support developing a baseline for access to cooling, measure the full scope of cooling need to then aggregate policy, technology, and finance options in a **National Cooling Action Plan**.

ACCESS TO COOLING | COOLING FOR ALL NEEDS ASSESSMENT

THREE COOLING FOR ALL - COOLING NEEDS

COMFORT & SAFETY

Does the population have access to space and mobility cooling that is adequate to maintain safety and productivity at home, in education, in the work environment and while moving between each?

FOOD & NUTRITION

Does the population have access to the food they need to achieve a healthy diet? Are agricultural and fisheries incomes sufficient to keep workers out of poverty?

HEALTH & CARE

Are vaccine programs, medicines and healthcare products reaching their target population? Are healthcare facilities equipped with the cooling they need to deliver adequate health services?

ACCESS TO COOLING | FROM COOLING NEEDS ASSESSMENT TO SOLUTIONS

THREE COOLING FOR ALL - COOLING NEEDS

COMFORT & SAFETY

FOOD & NUTRITION

HEALTH & CARE

COOLING SOLUTION APPROACH FOR OPTIMIZATION

FOUR COOLING FOR ALL - COOLING SOLUTION PILLARS

TECHNOLOGY

SERVICES

POLICY

FINANCIAL

Tackling the Cooling Challenge with National Cooling Action Plans

Linking NCAP to Cold-Chain Enhancement Needs

Toby Peters

Professor, University of Birmingham

Centre for Sustainable Cooling

COOLING FOR ALL NEEDS ASSESSMENT
UNDERSTANDING THE COLD-CHAIN CHALLENGE

Professor Toby Peters

_____

Professor in Cold Economy
Co-Director Centre for Sustainable Cooling
University of Birmingham

Visiting Professor
Heriot-Watt University
Global Innovation Centre, Kyushu University

THE COOLING FOR ALL NEEDS ASSESSMENT

In order for a country, city or community to ensure that the cooling needs of their population are met, they must first understand what those needs are.

Equipment-based projections

- Failure to capture needs
- Pre-supposing a solution

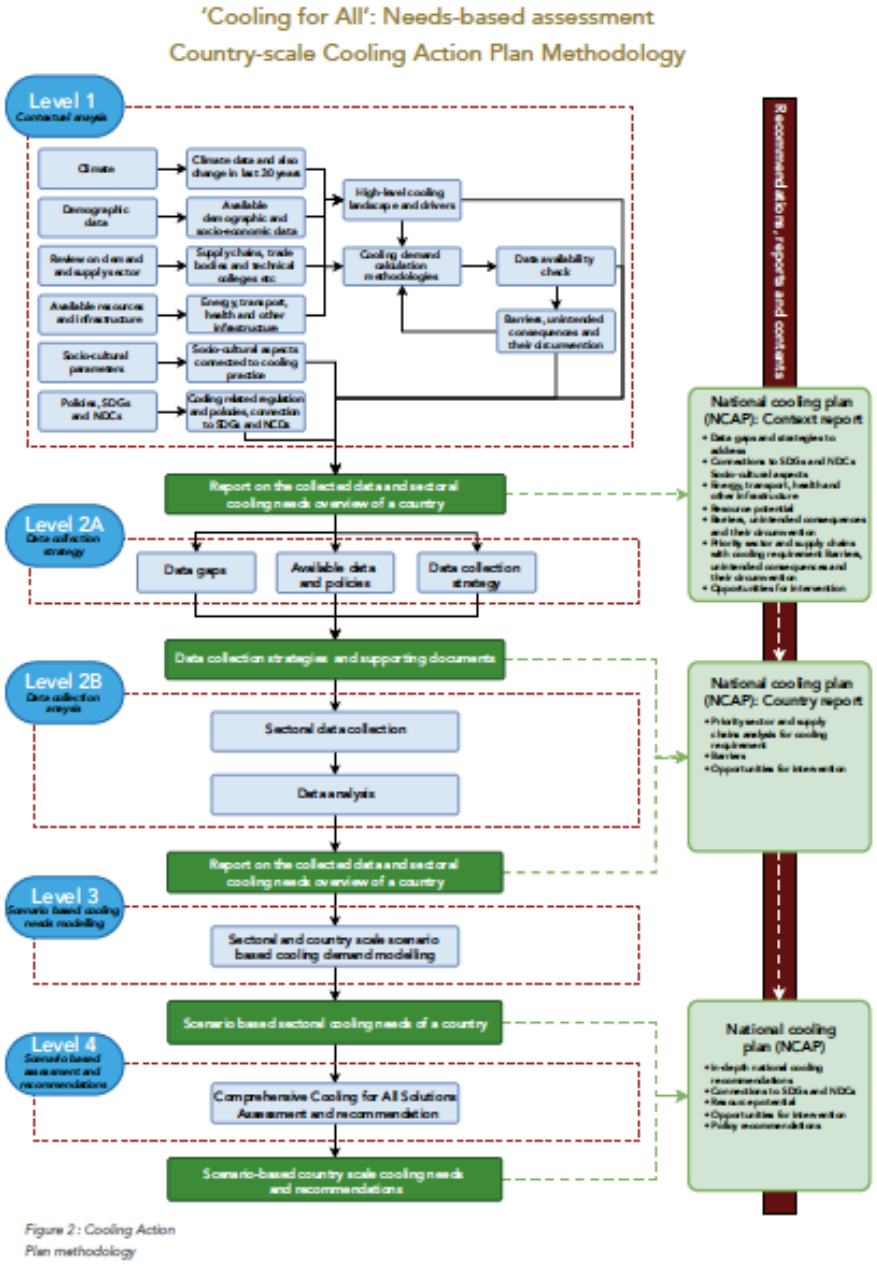


Figure 2: Cooling Action Plan methodology

Available online at https://www.sustainablecooling.org/wp-content/uploads/2020/06/Needs-Assessment-June-2020.pdf

Centre for Sustainable Cooling

Post-harvest handling of Fresh Farm Produce

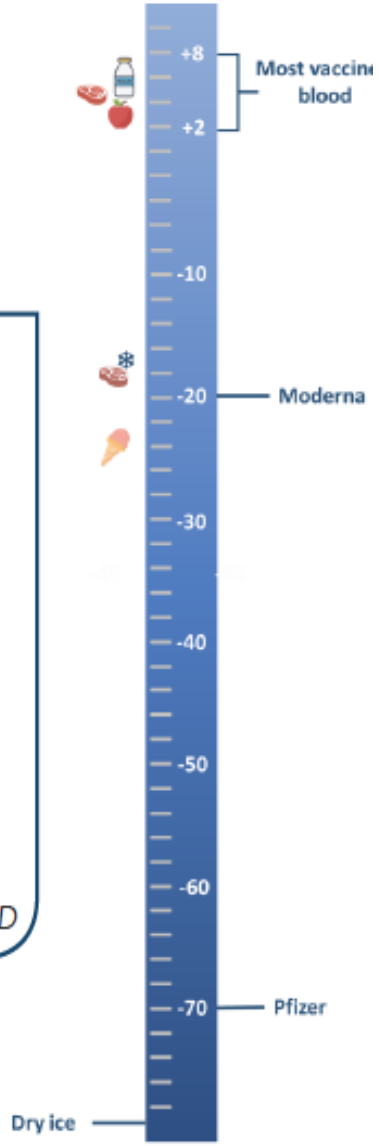
Holding Life (useful Life Span of Produce)

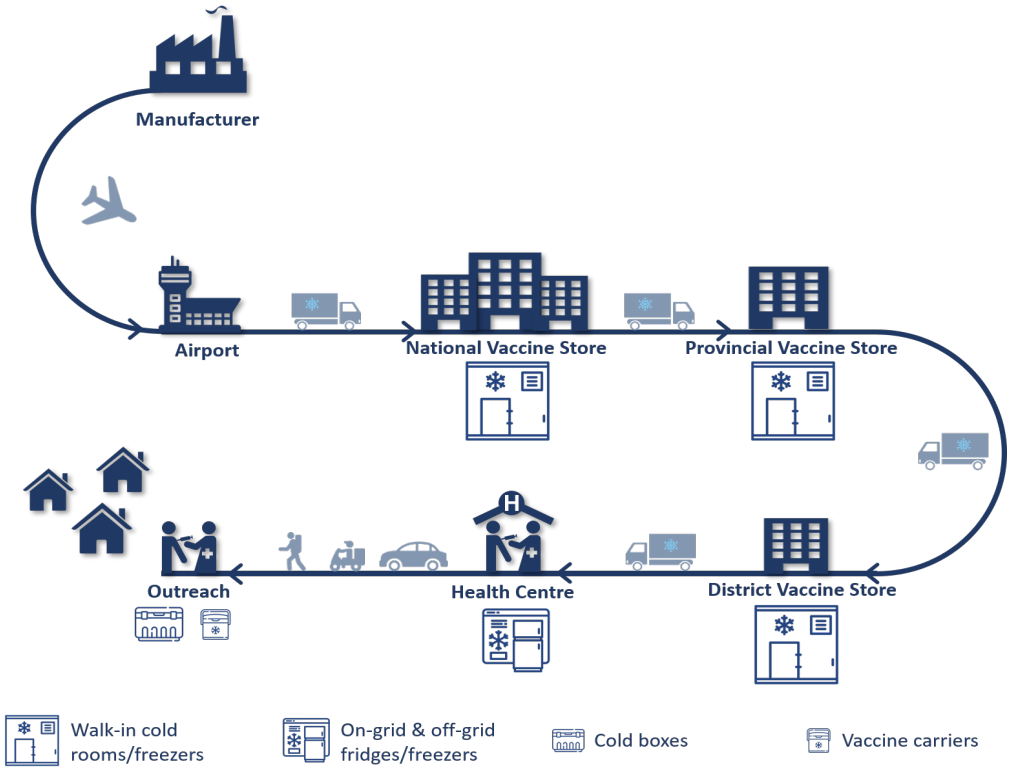
The useful or holding life is extended in the cold-chain which should be used to improve shelf life, i.e. longer presence on shelf. Holding life in storage is not equal to shelf life.

Harvest	Preconditioning at Pack-house	Inventory to market: Transport - Distribute	Retail Shelf QSR, Kitchens
		Buffer inventory in Cold Store	
Preparation		Transit	Shelf Life

Without cold-chain, the marketable life span is compressed, limiting market range. The inability to connect with markets leads to eventual food loss, nullifying any productivity gains at farms.

Pawanexh Kohli, NCCD





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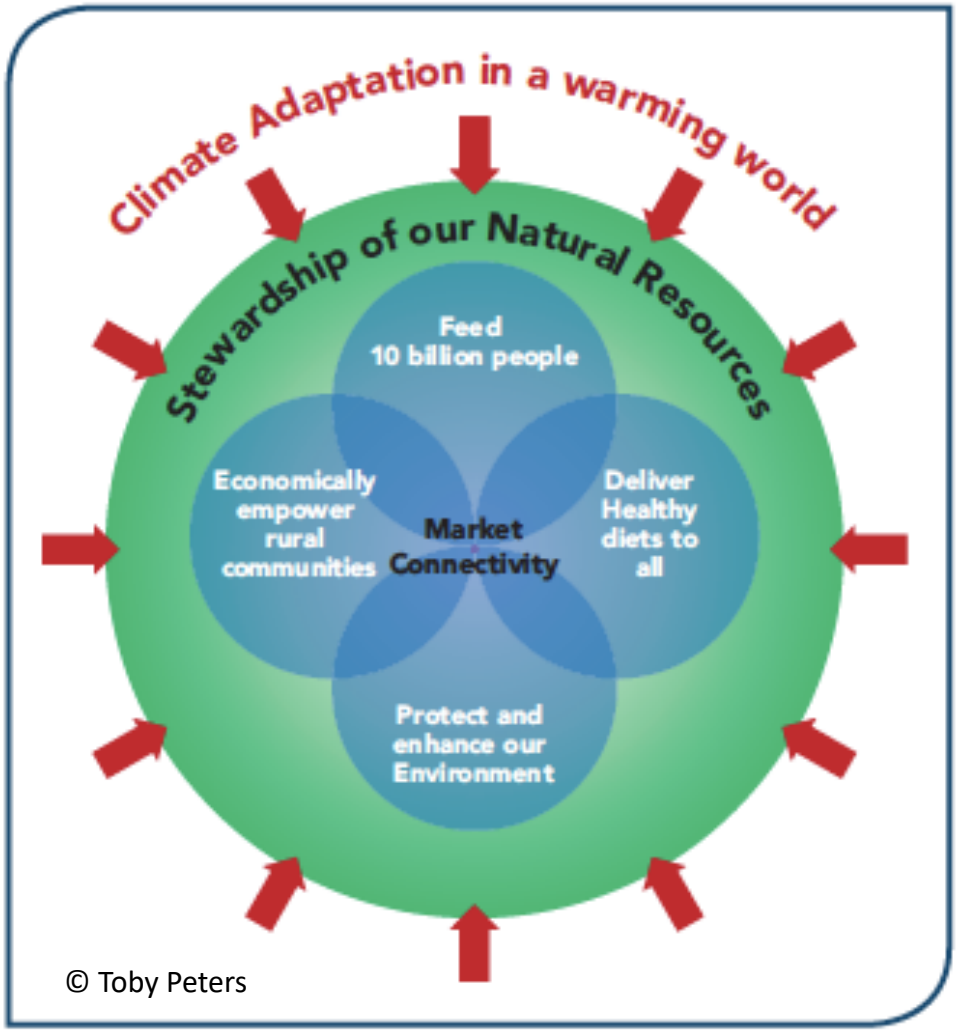
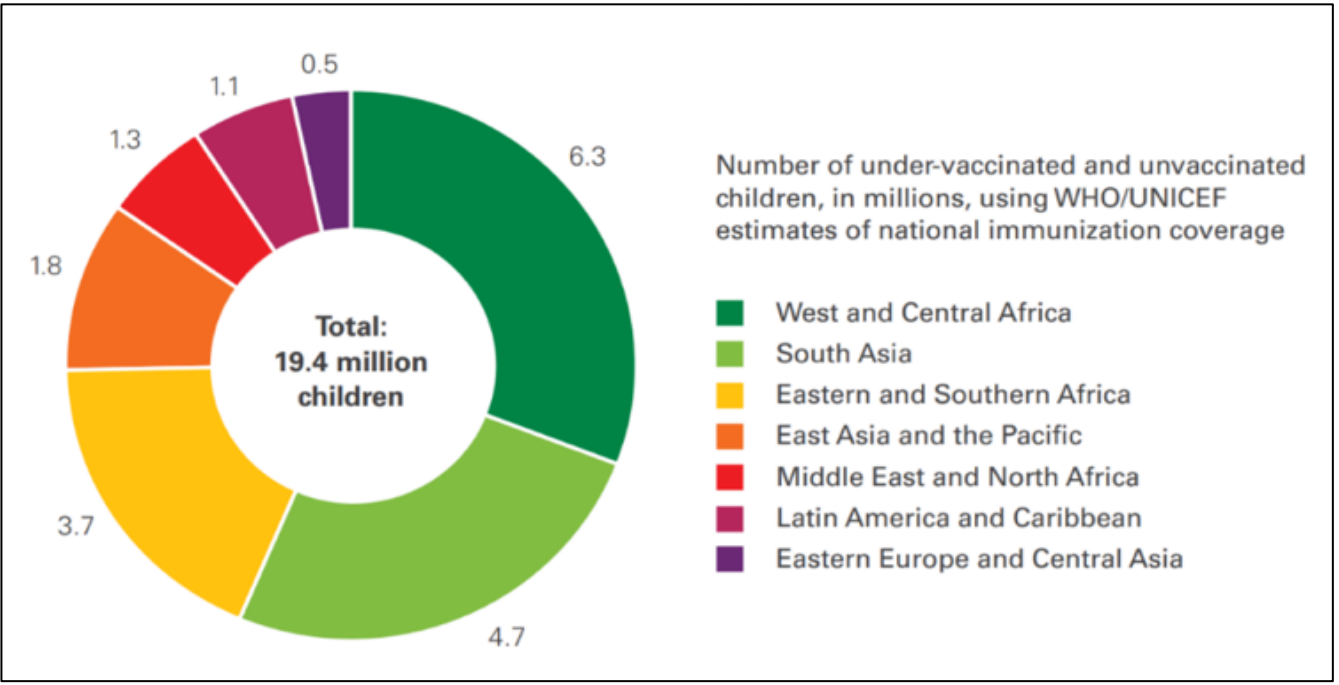
Needs Assessment is key to understanding the exam question

How do you create the local and global "field to fork" connectivity to nutritiously feed 10bn people sustainably from hundreds of millions of small-scale farmers whose livelihoods and well-being are often dependent on only 1-2 hectares, as well as ensure they are climate change adaptation ready and resilient …. sustainably



Centre for Sustainable Cooling

Covid-19 Immunisation - the single biggest logistics challenge we have ever faced? But is it also an opportunity?



19.4M children miss out on vaccines annually

1.5M vaccine-preventable deaths per year

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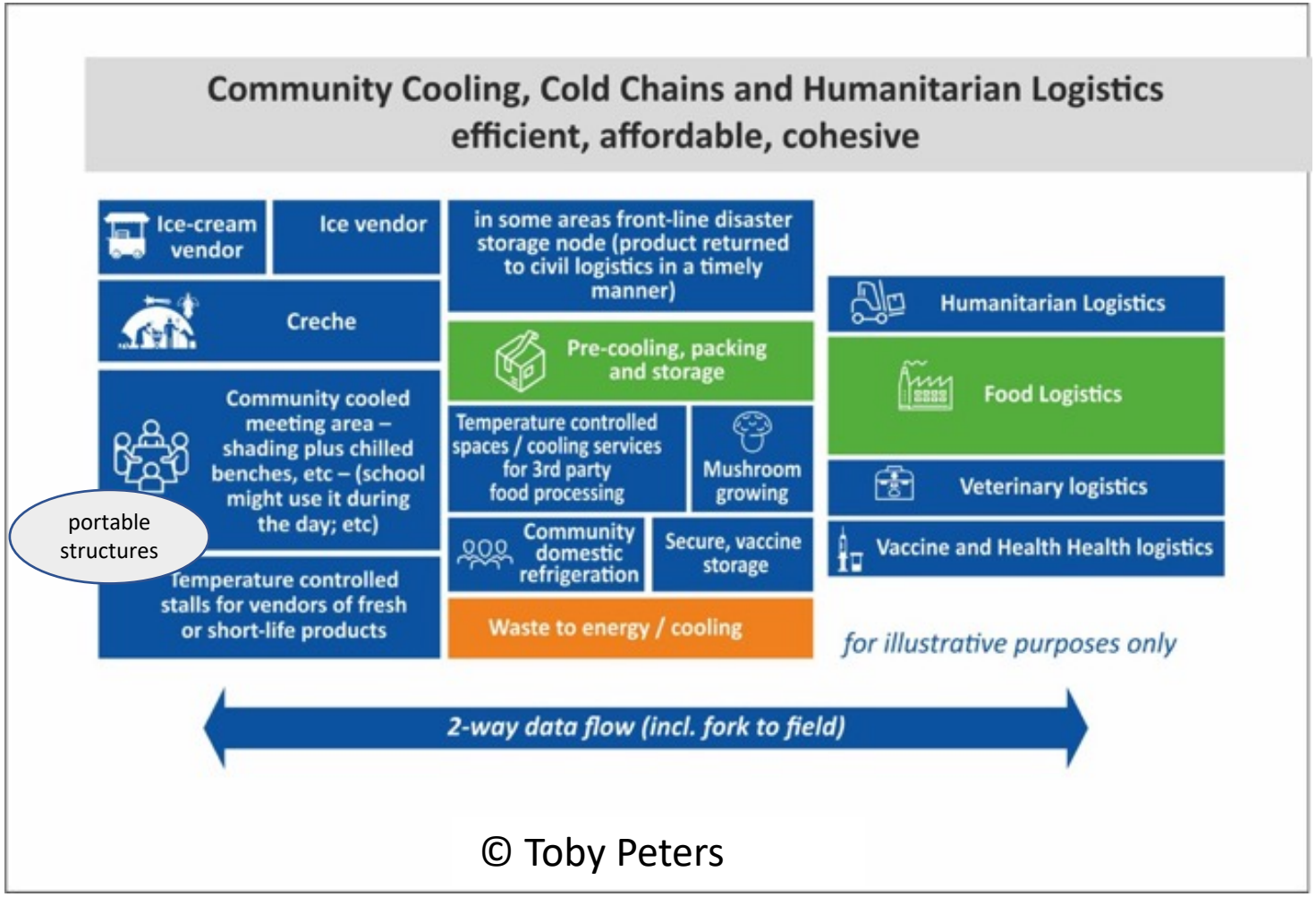
EQUITABLE ACCESS to SUSTAINABLE COOLING

Community Cooling Hubs



Tackling the Cooling Challenge with National Cooling Action Plans

NCAP Methodology Introduction

Ksenia Petrichenko

Economic Affairs Officer, UN ESCAP

UNITED NATIONS ESCAP
Economic and Social Commission for Asia and the Pacific

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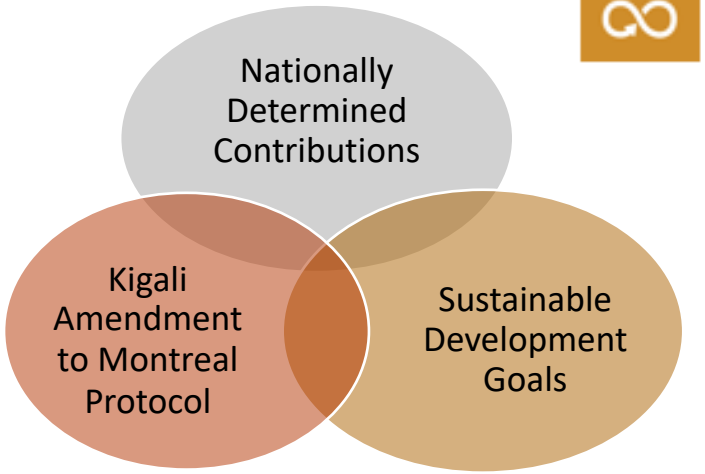
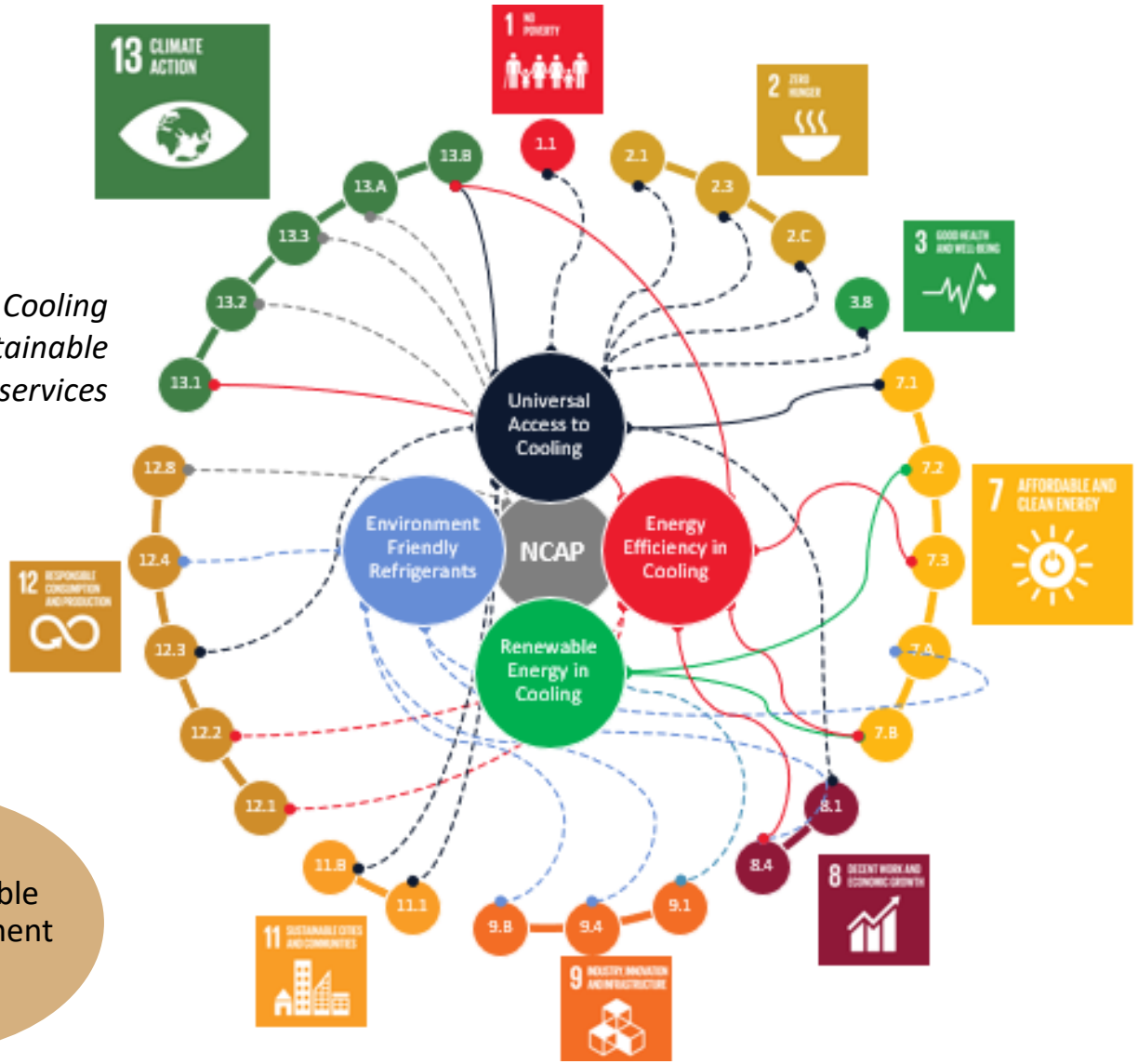
KEY ROLE OF NATIONAL COOLING ACTION PLANS

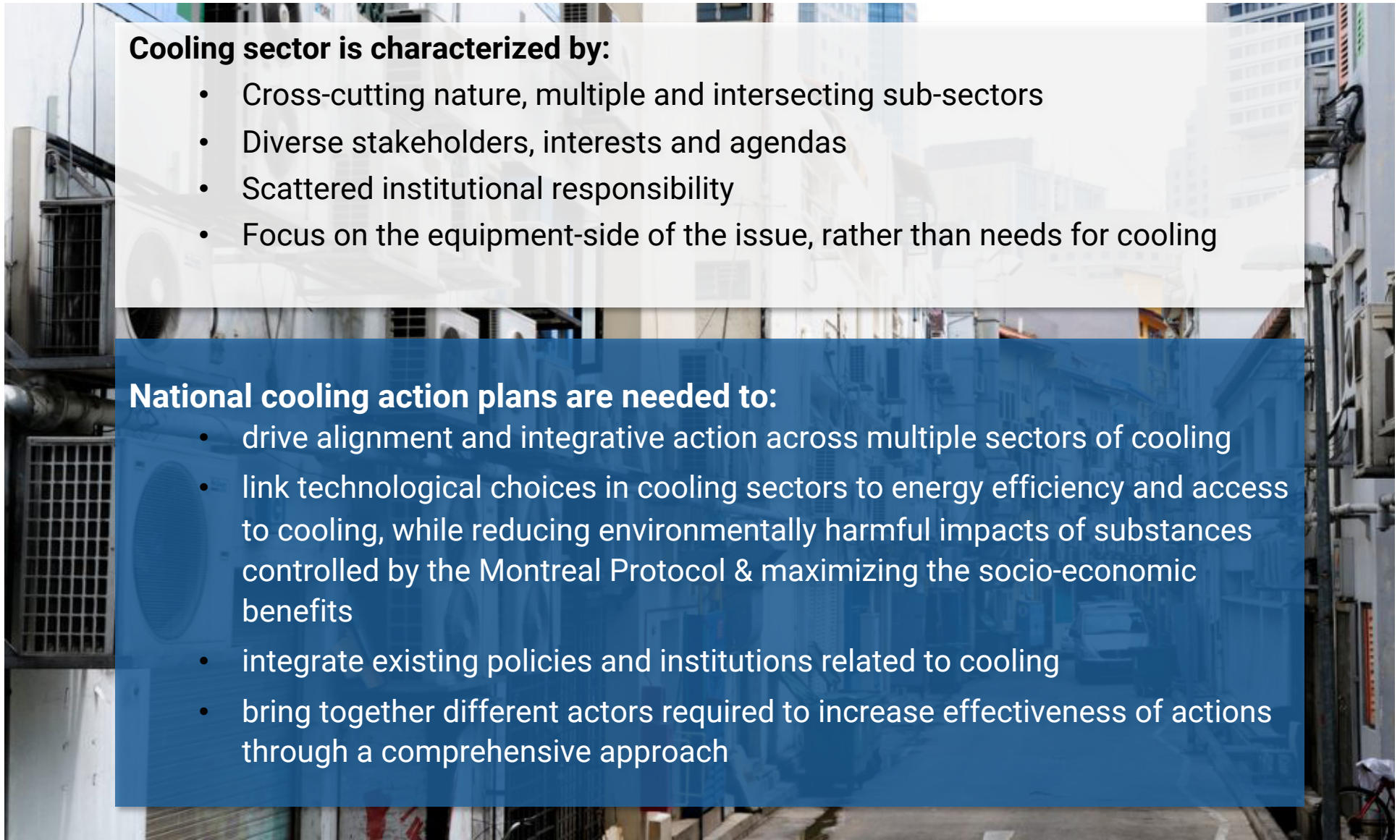
"We need all countries to develop National Cooling Action Plans to deliver efficient and sustainable cooling and bring essential life-preserving services like vaccines and safe food to all people."

- Antonio Guterres, UN Secretary General
World Ozone Day 2019





WHY COOLING ACTION AT A 'NATIONAL' LEVEL



Cooling sector is characterized by:

- Cross-cutting nature, multiple and intersecting sub-sectors
- Diverse stakeholders, interests and agendas
- Scattered institutional responsibility
- Focus on the equipment-side of the issue, rather than needs for cooling

National cooling action plans are needed to:

- drive alignment and integrative action across multiple sectors of cooling
- link technological choices in cooling sectors to energy efficiency and access to cooling, while reducing environmentally harmful impacts of substances controlled by the Montreal Protocol & maximizing the socio-economic benefits
- integrate existing policies and institutions related to cooling
- bring together different actors required to increase effectiveness of actions through a comprehensive approach

NCAP: A SIGNIFICANT UNDERTAKING

Current NCAPs are invaluable to learn from:

- A number of countries took up a challenge of NCAP development
- India, China, Rwanda, Trinidad and Tobago, Panama, Cuba
- 20+ are countries developing NCAPs

Challenges countries may face during NCAP development:

- Need for significant public and private sector collaboration
- Resource intensive – requires financial resources as well as significant and skilled human resources
- Data availability – quantity, quality and reliability is a common challenge in most countries
- Know-how for addressing the complexities and creating an NCAP is scarce

NATIONAL COOLING ACTION PLAN METHODOLOGY

In collaboration with

are developing a holistic NCAP methodology, which can be applied in any country to propose a **comprehensive guiding framework** for NCAP development with pilots it in Cambodia and Indonesia

Tackling the Cooling Challenge with National Cooling Action Plans

NCAP Development Methodology

Satish Kumar
President & Executive Director
Alliance for an Energy Efficient Economy

Sneha Sachar
Strategic Advisor,
Alliance for an Energy Efficient Economy

Cool Coalition

Holistic Methodology for Developing A National Cooling Action Plan (NCAP)

Tackling the Cooling Challenge with National Cooling Action Plans
MOP 32 Side Event
November 24, 2020

Presented by:
AEEE: Satish Kumar, Sneha Sachar

The Idea of a Holistic NCAP Methodology: Can One Size Fit All?

- NCAPs will be highly ‘customized’ for each country
- The existing NCAPs show wide-ranging approaches:
  - Comprehensive, cross-sectoral and resource intensive endeavors
  - Quick-turnaround initiatives focused on establishing the foundations
- The proposed Methodology –
  - Draws upon the shared experience of several NCAPs;
  - Expert inputs from Working Group
  - Underlying objective: To propose a guiding framework for NCAP development (emphasis on flexibility and customizability)

Foundational Principles for the Methodology

Adaptability is critical.

- There is no cookie-cutter solution!
- Methodology is meant to provide guidance while affording NCAP development teams high levels of discretion and flexibility to adapt to countries' unique context and needs
- Key determining factor can be country's objectives and priorities. Such as:
  - Facilitating compliance with Kigali Amendment or Paris Agreement
  - Supporting the Sustainable Development Goals
  - Energy/ electricity security
  - Thermal Comfort for All
- Other factors & variables include: unique political and manufacturing environment, availability and quality of data and existing knowledge-base, resource availability/constraints.

Foundational Principles for the Methodology

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!)

Multi-stakeholder & collaborative development – right from the start.

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

NCAP development team

Researchers and analysts

Government entities

Private sector & industry

Establishing scope of the NCAP: Think Holistically, Plan Strategically

- A holistic and comprehensive NCAP is ideally the aspirational goal
- However, this may not be an immediate reality for some countries
  - Determining question: what is the opportunity cost of delayed action?
- Balanced approach is recommended— think holistically and plan strategically
  - Balance between: Aspirational & Achievable; Comprehensiveness & Timeliness

While a comprehensive NCAP is an ideal aspirational goal, a country should strategically design the NCAP to best balance its pressing priorities with its resources and capacities, and to minimize the opportunity costs of business-as-usual cooling, while keeping a holistic view of cooling in perspective.

Addressing Cooling:
An Integrated Approach Should be the Norm

This approach 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

Cool Coalition

The NCAP Development Methodology

Broad Steps in the NCAP Development Process

CONTEXTUAL ASSESSMENT & PLANNING

* NCAPs Data Collection Framework

COUNTRY-CONTEXT MAPPING

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

PLANNING AND PREWORK

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

COOLING DEMAND ASSESSMENT

* NCAPs Data Collection Framework

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

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

SECTOR-SPECIFIC RECOMMENDATIONS & SOLUTIONS

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

INTEGRATION & NCAP SYNTHESIS

INTEGRATION

Consolidate sector-specific assessments into a cohesive cooling assessment identifying cross-sectoral synergies; establishing NCAP goals and priority areas; obtaining alignment and inter-ministerial buy-in

IMPLEMENTATION GUIDANCE

Providing big picture guidance on the NCAP implementation process and timelines, governance and monitoring framework, recalibration protocols, etc.

MULTI-STAKEHOLDER COLLABORATION

Contextual Assessment & Planning

Data Collection Framework
- Country Context Mapping

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

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*

Cooling Demand Assessment

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

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

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*

Integration & NCAP Synthesis

INTEGRATION

- Aggregation of the sector-specific analysis into cohesive country-wide view of cooling
- Synthesizing into NCAP goals and recommendations
- Obtain alignment and inter-ministerial buy-in for cross-sectoral synergies

IMPLEMENTATION GUIDANCE

- Implementation and governance framework
- Monitoring protocol and key success factors
- Process for recalibration of 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*

Cool Coalition

APPENDIX

NCAP Status by Country (as of Nov. 2020)

Country	Scope	Supporting Agency	Status
Argentina	National	UNIDO	In progress
Bahamas	National	UNE	In progress
Bangladesh	National	UNDP, SEforALL	In progress
Barbados	National	UNE	In progress
Brazil	National	iCS	In progress
Chile	National	UNDP	In progress
China	National	EFC	Published
Cambodia	*Early stage	Cool Coalition	In progress
Colombia	Sectoral	UNDP	In progress
Costa Rica	National	UNDP	In progress
Cuba	National	UNDP	Published
Dominican Republic	NCP	UNE	In progress
Ghana	NCP	UNDP, SEforALL	In progress
India	National	Govt. of India	Published
Jamaica	National	UNE	In progress

Country	Scope	Supporting Agency	Status
Kenya	National	CLASP	In progress
Lebanon	National	UNDP	In progress
Mexico	National	UNDP	In progress
Nigeria	National	UNDP, SEforALL	In progress
Panama	National	UNDP	Published
Philippines	National	UNDP	In progress
Rwanda	National	UNE	Published
Saint Lucia	National	UNE	In progress
South Africa	National	UNDP, LBNL	In progress
Sri Lanka	National	UNDP, SEforALL	In progress
Thailand	National	WB	In progress
Trinidad & Tobago	National	UNDP	Published
Uruguay	National	UNDP	In progress
Vietnam	National	WB	In progress

Tackling the Cooling Challenge with National Cooling Action Plans

Piloting the NCAP Methodology

Pak Sokharavuth

Deputy Director General
General Directorate of Environmental Protection
Ministry of Environment
Cambodia

Cambodia NCAP Development

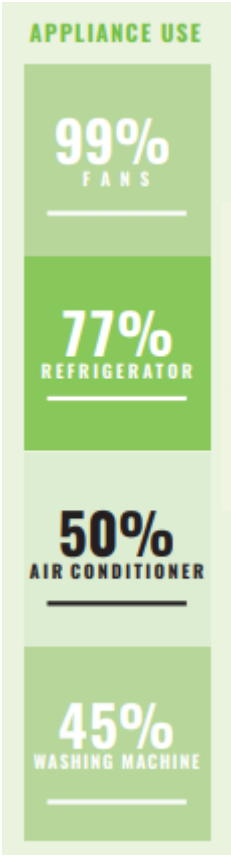
Pak Sokharavuth
National Ozone Officer
Deputy Director General,
The General Directorate of Environmental Protection
Ministry of Environment Cambodia

Tackling the Cooling Challenge with National Cooling Action Plans
Side event MOP32

Tuesday 24th of November 2020

COOLING ACTION IS A PRIORITY FOR CAMBODIA

- Cambodia's economy has been growing at an average rate of 7%, accept in 2020 due to COVID19
- By 2030, Cambodia's electricity consumption is forecast to more than triple in comparison to the levels of demand in 2015
- In 2017 the average estimated penetration rate for cooling equipment in Cambodia was about 2% and considering country's steady economic growth and rising income, energy use for space cooling and refrigeration is bound to increase
- At the same time Cambodia's Nationally Determined Contribution, aims at 16% reduction in greenhouse gas emissions from the energy sector in comparison to a business-as-usual scenario by 2030
- The intent of carbon emission reduction is further supported under:
  - National Green Growth Policy (2013)
  - National Green Growth Strategic Plan (2013-2030)
  - National Policy, Strategy, and Action Plan on Energy Efficiency (2017)



Source: National Energy Efficiency Policy Draft (2017)

DEVELOPMENT OF NCAP FOR CAMBODIA

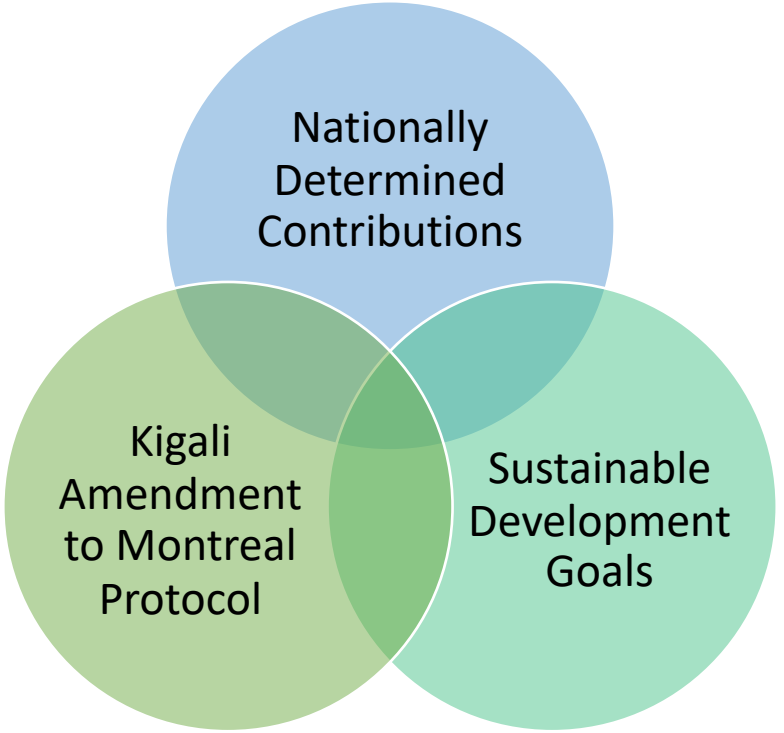
Cambodia in collaboration with UNEP and ESCAP started the development of the **National Cooling Action Plan for Cambodia** in the context of Cool Coalition

The NCAP will identify comprehensive actions to reduce **energy use** and **emissions** from and emissions from cooling aligned with plans related to emissions from **refrigerant transition**.

- Cambodia: **First country to pilot** the Cool Coalition comprehensive methodology

- NCAP for Cambodia will cover the following important cooling sectors:
  - Space cooling in buildings
  - Cold-chain & refrigeration (food and healthcare)
  - Mobile AC
  - Industrial process cooling

- **Access to cooling** is particularly important for Cambodia, as it is presently quite low across cooling sectors, but is likely to expand driven by economic growth and increasing incomes



NCAP DEVELOPMENT PROGRESS

Country Mapping

- Collect high-level data to set the context and guide the data collection for the sectors
- Determine **the scope** and extent of the NCAP
- Focus to country-specific priority areas
- Understand socio-economic implications

Sept-Oct 2020

Sector Data Collection

- Space cooling in buildings
- Cold-chain & refrigeration (food and healthcare)
- Mobile AC
- Industrial process cooling

Oct-Jan 2020

Data Analysis

- Combining data results and define the met/unmet national demand
- Project how the demand will grow and develop a scenario of ambitious polices to compare
- Identify suitable and impactful policy interventions

Jan-Mar 2020

NCAP draft and review

- Contextual and methodological chapters
- Policy recommendations chapters
- Reviews by Steering Committee
- Draft revisions and submit for approval

Feb-April 2020

COLLABORATION IS KEY FOR A NCAP

NCAP International team

- Comprehensive methodology for NCAP development
- Technical guidance and support through the NCAP process
- International expertise on sustainable cooling best-practices and solutions
- Large global network of partners and experts

NCAP National team

- Lead on Montreal Protocol implementation
- Stakeholder engagement for NCAP
- Data collection for NCAP

- Lead on NDC update and inclusion of sustainable cooling in it
- Drafting the text of the NCAP based on the national assessment prepared by the international team

- Development of Cambodia - NDC Roadmap for Buildings and Construction 2020-2050
- Passive cooling strategies are considered for inclusion into building regulations

Multi-stakeholder technical group to support the NCAP development is being formed with participation from the government, private sector and academia

Tackling the Cooling Challenge with National Cooling Action Plans

Closing Remarks

Miriam Liliana Hinostroza

Head, Global Climate Action Unit
Energy & Climate Branch
United Nations Environment Programme

Side event to:

COP 12 // MOP 32

ONLINE MEETING

23–27 NOV 2020

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THANK YOU

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