Organised by: UN environment programme 50 1972-2022 | Cool Coalition | U4E United for Efficiency

In collaboration with: E3G | Sustainable Energy for All | Clean Cooling Collaborative

In the framework of the 2021 Africa Climate Week Virtual Thematic Sessions

28 Sept

14:00–16:00 GMT +3

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Organised by: UN environment programme 50 1972-2022 | Cool Coalition | U4E United for Efficiency

In collaboration with: E3G | Sustainable Energy for All | Clean Cooling Collaborative

In the framework of the 2021 Africa Climate Week Virtual Thematic Sessions

28 Sept

14:00–16:00 GMT +3

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Brian Holuj

Programme Management Officer, **United for Efficiency, UNEP**

Richard Munang

Regional Climate Change Coordinator for Africa, **UN Environment Programme**

Juliet Kabera

Director General, **Rwanda Environment Management Authority**

Alice Uwamaliya

Associate, **SEforALL**

Okon Ekpenyong

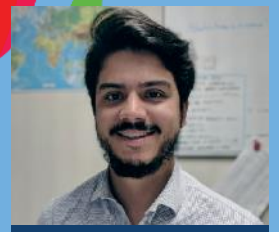
Director, **Energy Commission of Nigeria**

Marindany Kirui

Coordinator National Ozone Unit, **Ministry of Environment and Forestry, Kenya**

Maphuti Legodi

Department of Mineral Resources and Energy, South Africa



Marco Duran

Energy Efficiency and Cooling Specialist, **Cool Coalition & United for Efficiency, UNEP**

Satish Kumar

President and Executive Director, **Alliance for an Energy Efficient Economy**

Gerry George

Gerry George, Senior Research Associate, **Alliance for an Energy Efficient Economy**

Larissa Gross

Research Manager, **E3G**

Sabin Basnyat

Senior Energy Efficiency Specialist, **Green Climate Fund**

Jalel Chabchoub

Chief Investment Officer / Energy Efficient Expert, **African Development Bank**

Angèle Luh-Sy

Head, Sub-Regional Office for West Africa, **UN Environment Programme**

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Country Needs and NCAP Experiences

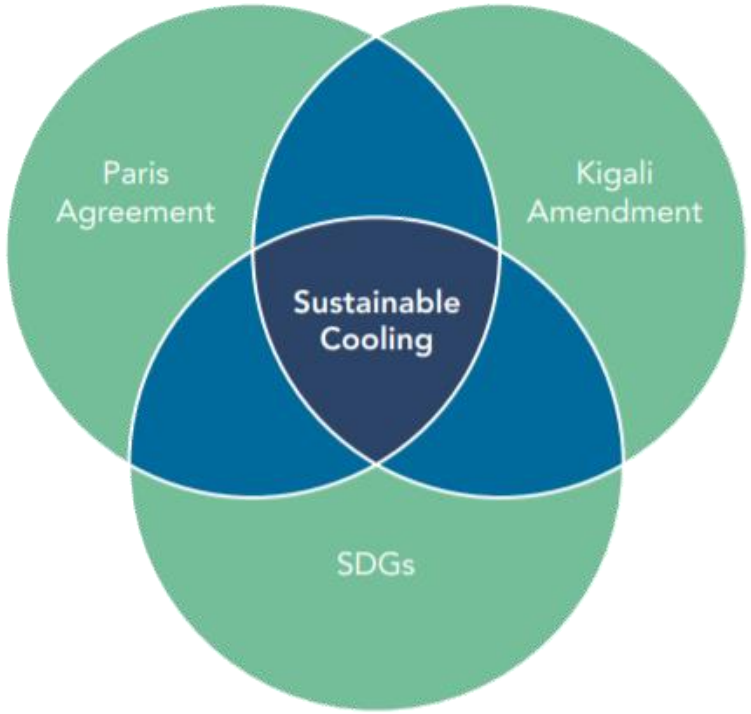
ALICE UWAMALIYA

Cooling Associate
SEforALL

In collaboration with:

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society



CONTEXT

In a warming world, delivering access to the sustainable cooling is essential for the Sustainable Development Goals.

Sustainable Energy for All (SEforALL) hosts the **Cooling for All Secretariat**, which works with development partners and governments to deliver access to sustainable cooling.

Access to cooling is an **essential component of National Cooling Plan** analysis and drafting

Source: Chilling Prospects 2021

In collaboration with:

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Global population at risk				
	HIGH RISK		MEDIUM RISK	LOW RISK
Populations at Risk	**RURAL POOR**	**URBAN POOR**	**LOWER-MIDDLE INCOME**	**MIDDLE INCOME**
Risk Indicators	• Lack of access to energy • Proportion of rural population living in poverty	• Lack of access to energy • Proportion of the population living in urban slums	• Proportion of the population living on less than USD $10.01 / day outside of rural or urban poverty	• Proportion of the population living between $10.01 and $20.01 / day
2021 Access Gap	**355 MILLION**	**732 MILLION**	**2.34 BILLION**	**1.38 BILLION**
Cooling needs	**Human Comfort and safety**		**Food and agriculture**	**Health services**

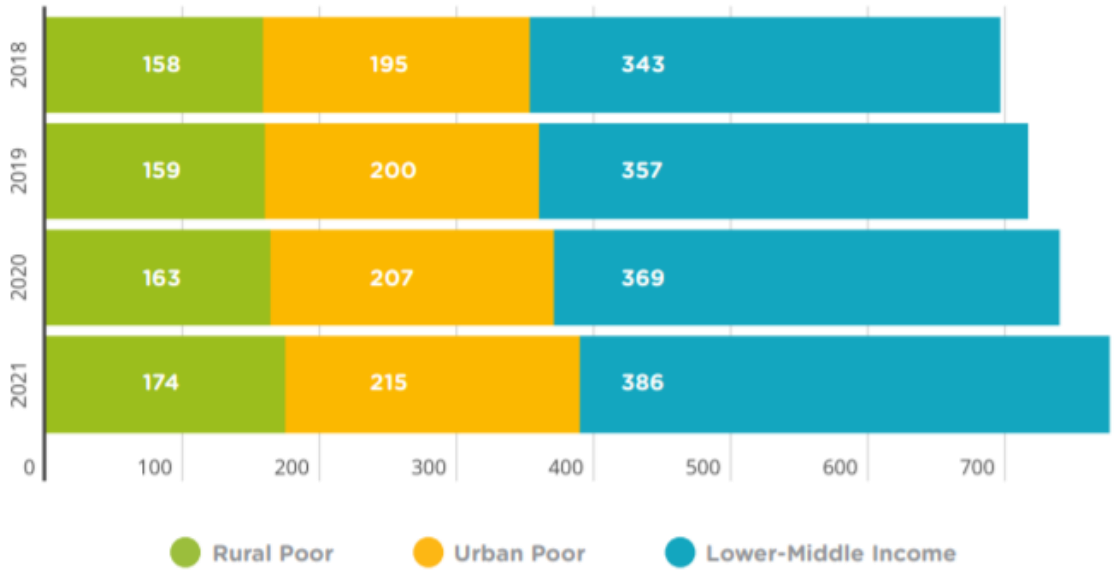
Source: Chilling Prospects 2021

In collaboration with:

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Africa Context



Trends in populations at risk across the 31 identified high-impact countries in Africa (millions)

High-impact countries in Africa			
Population at Risk	**Change since 2018 (%)**	**Proportion of Population (% of total population)**	**Proportion of Population (% of global total for vulnerable group)**
Rural Poor	11.6%	21%	49%
Urban Poor	12.6%	26%	29%
Lower-Middle Income	18.6%	46%	17%

Trends across 31 high-impact countries in Africa

Source: Chilling Prospects 2021

In collaboration with:

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Needs driven NCAP

- Identifies or quantifies vulnerable groups
- Includes measures that supports major international treaties such as the Paris Agreement

Cooling Access Gap

- Promoting sustainable and smart cooling practices
- Delivery of efficient and sustainable cooling and bring essential life-preserving services like vaccines and safe food to all people
- Promoting the adoption and increased access to energy and energy-efficient, affordable appliances

Source: Chilling Prospects 2021

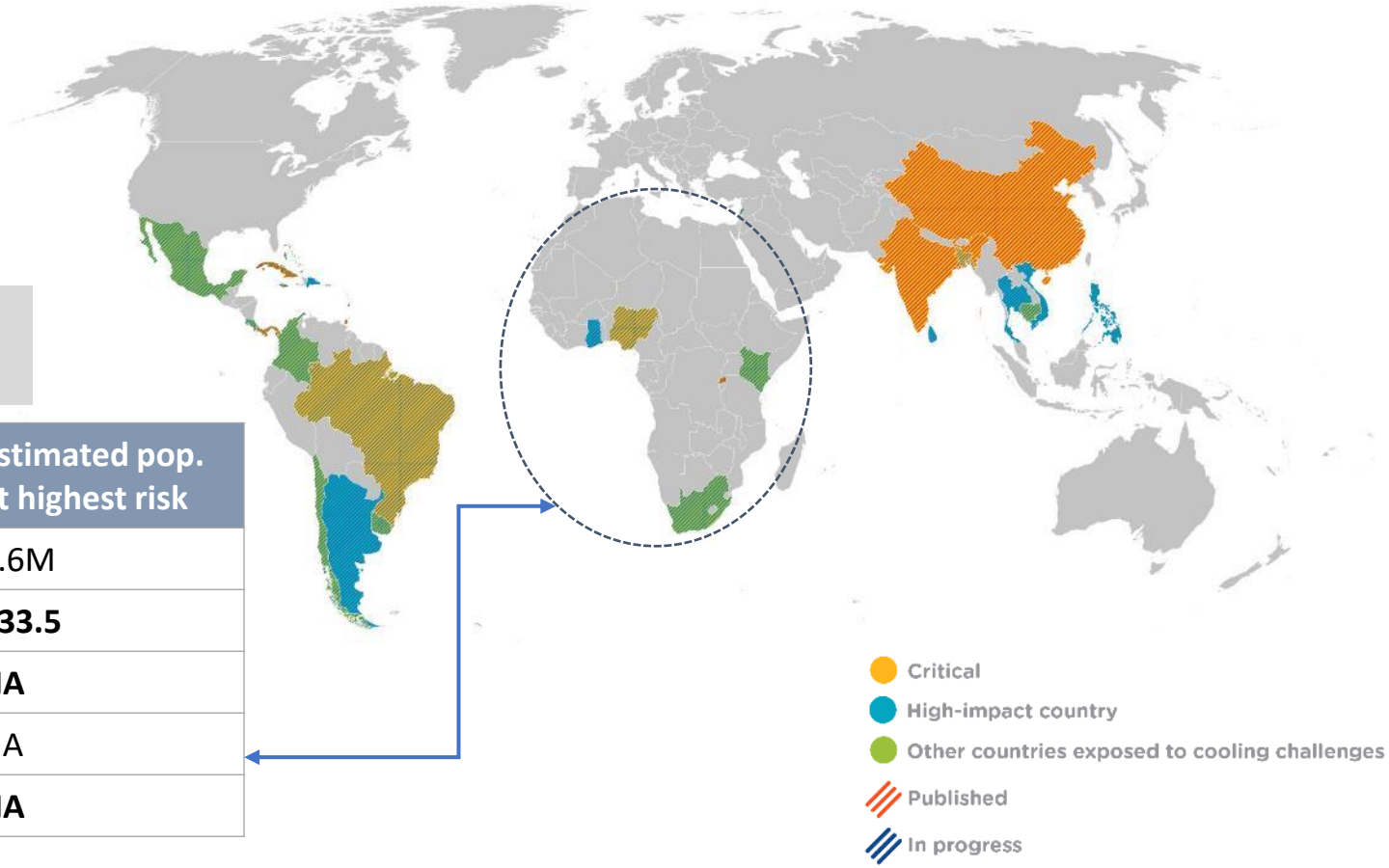
In collaboration with:

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Status update on National Cooling Plans

Country	Risk category	NCAP Status	Estimated pop. at highest risk
Ghana	High Impact	In progress	8.6M
Nigeria	**Critical**	**In Progress**	**133.5**
Kenya	**Other**	**In Progress**	**NA**
Rwanda	Other	Published	NA
South Africa	**Other**	**In Progress**	**NA**



Source: Chilling Prospects 2021

In collaboration with:

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

THANK YOU

UNEP - COOL COALITION

Ms. Lily Riahi
Lily.Riahi@un.org

Ms. Irene Fagotto
Irene.Fagotto@un.org

UNITED FOR EFFICIENCY

Mr. Brian Holuj
Brian.Holuj@un.org

Mr. Marco Duran
Marco.Duran@un.org

UN environment programme 50 1972-2022 | Cool Coalition | U4E United for Efficiency | In collaboration with: E3G | Sustainable Energy for All | Clean Cooling Collaborative

28 Sept

14:00–16:00 GMT +3

Developing and Implementing National Cooling Action Plans in Africa:

An Interactive Workshop for Officials and Civil Society

Introduction to the methodology for the development of a National Cooling Action Plan

Marco Duran, Energy Efficiency and Cooling Specialist, UNEP

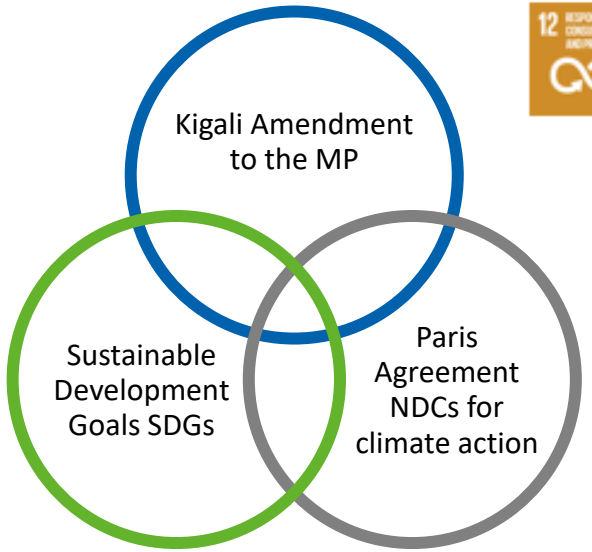
UN environment programme 50 1972-2022 | Cool Coalition | U4E United for Efficiency | In collaboration with: E3G | Sustainable Energy for All | Clean Cooling Collaborative

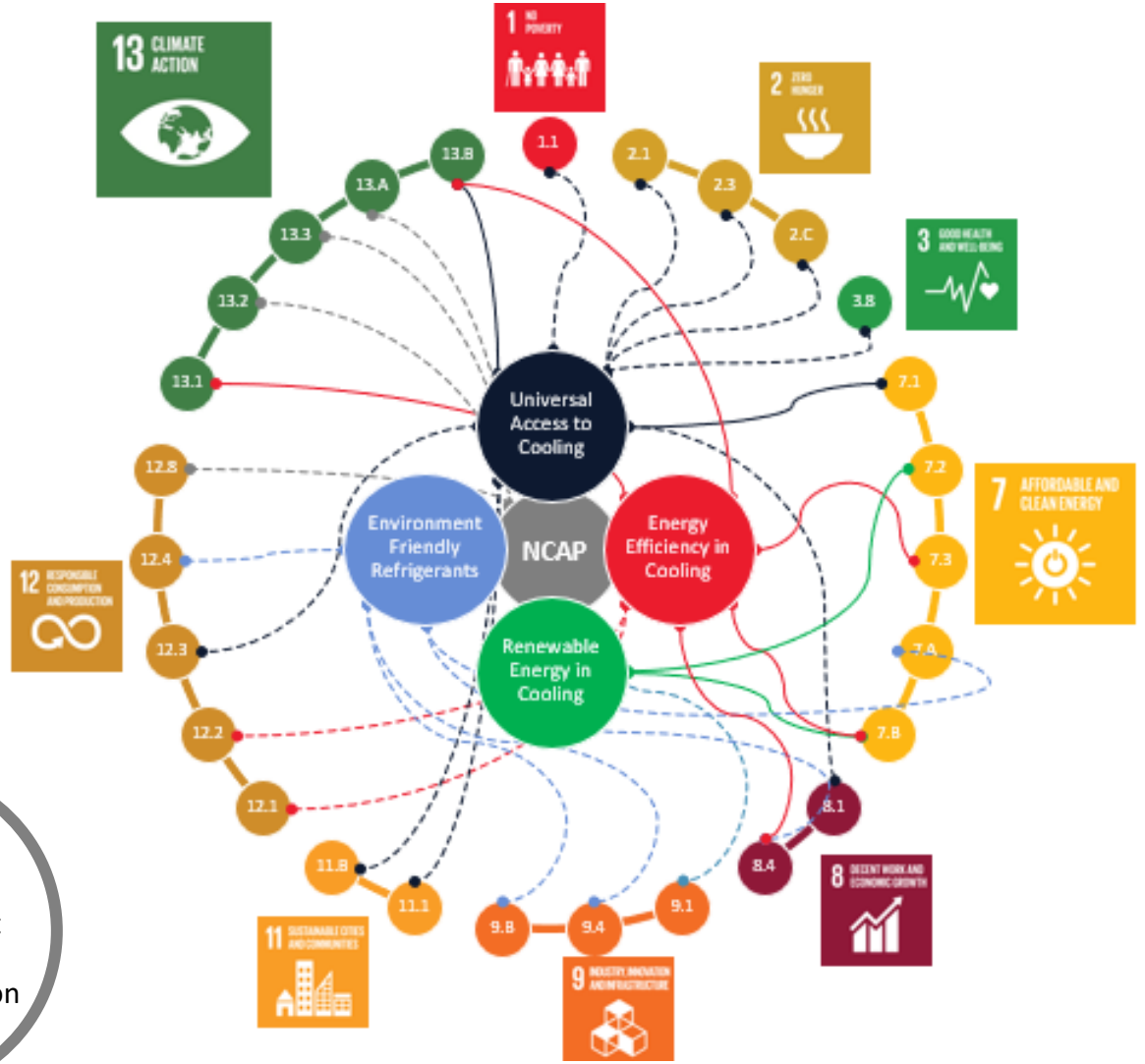
Key role of National Cooling Action Plans (NCAPs)

Connecting sectors and international commitments

"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





Cool Coalition

Developing a comprehensive methodology to support countries in developing their NCAP

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

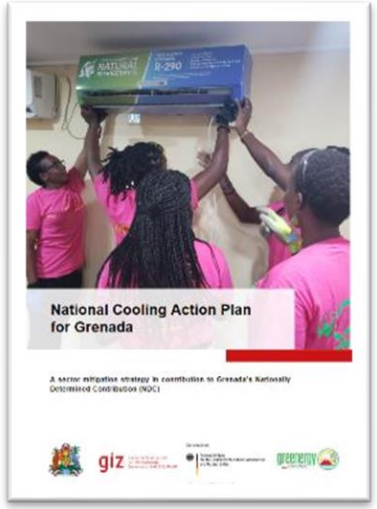
A holistic methodology to support countries with a **comprehensive guiding framework** for developing their NCAP. Currently piloted in **Cambodia** and **Indonesia**

Think Holistically, Plan Strategically

NCAPs for joint coordinated action

Country's can better plan their cooling action with NCAPs

- Diagnose the national situation and define limitations and scope (priority sectors)
- Understand the National Context and ongoing efforts to improve inter-ministerial coordination
- Recommendations-based: to respond to key gaps and opportunities
- Supporting tools and programme development to help drive implementation
- Coordination for implementation of priority actions, manage international funding and reduce duplication



*Kenya NCAP

*South Africa NCAP

*Nigeria NCAP

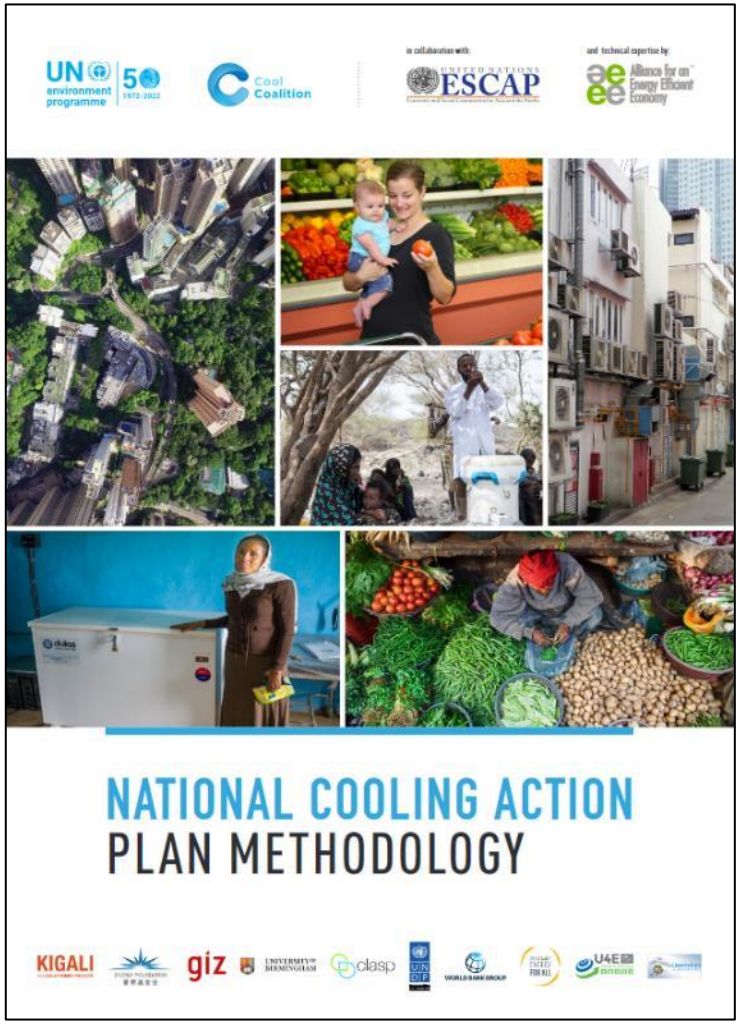
Some examples already published and *upcoming in the region

National Cooling Action Plan Methodology (2021)

Build on partners' and countries' experience and insights through the Cool Coalition NCAP Working Group

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



Linking Climate Action, Kigali Amendment and SDGs through NCAPs

Cool Coalition

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

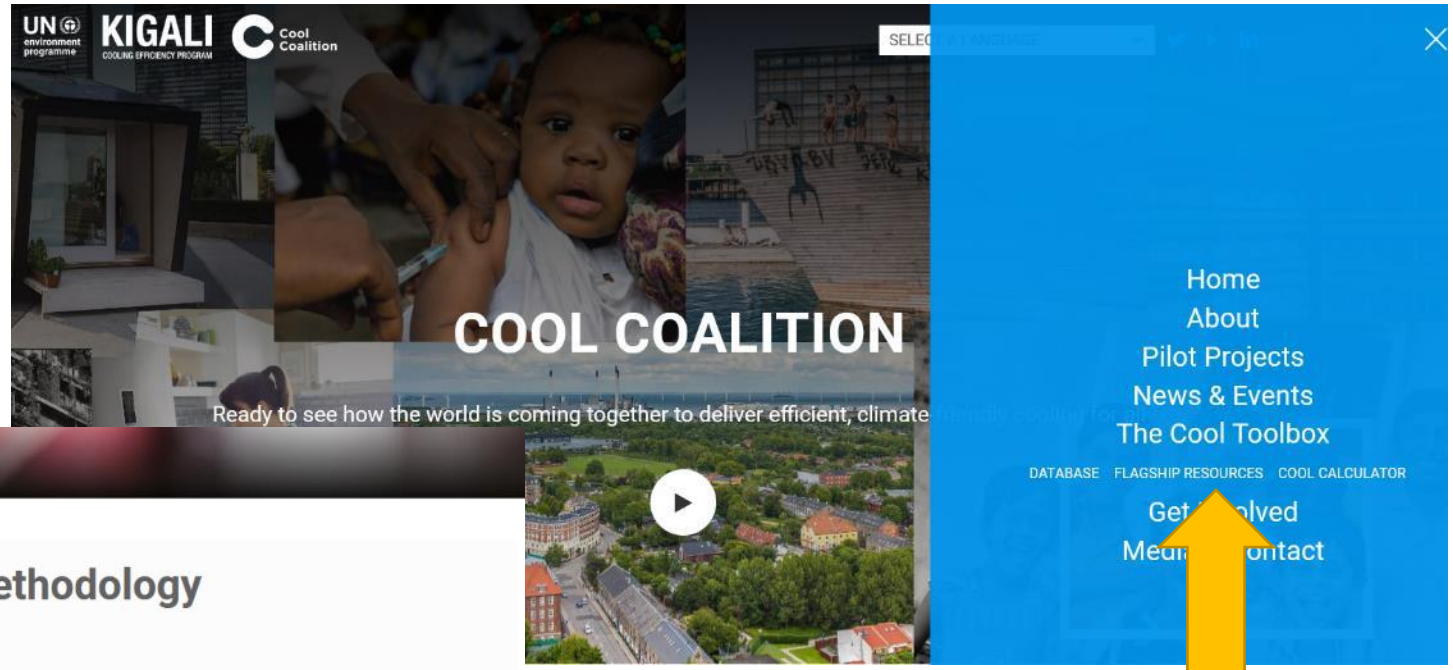
Through the NCAP Cooling Data Assessment we address:

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**

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

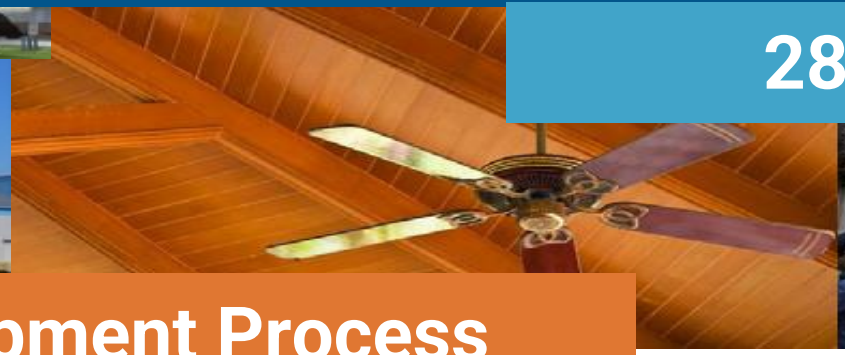
DOWNLOAD

2



Developing and Implementing National Cooling Action Plans in Africa: An Interactive Workshop for Officials and Civil Society

28 September 2021




The NCAP Development Process and Cooling Demand Assessment

Satish Kumar, President and Executive Director, AEEE
Gerry George, Senior Research Associate, AEEE

Alliance for an Energy Efficient Economy

UN environment programme 50 1972-2022 | Cool Coalition | U4E United for Efficiency

In collaboration with: E3G | Sustainable Energy for All | Clean Cooling Collaborative

The NCAP Development Methodology

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

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!)

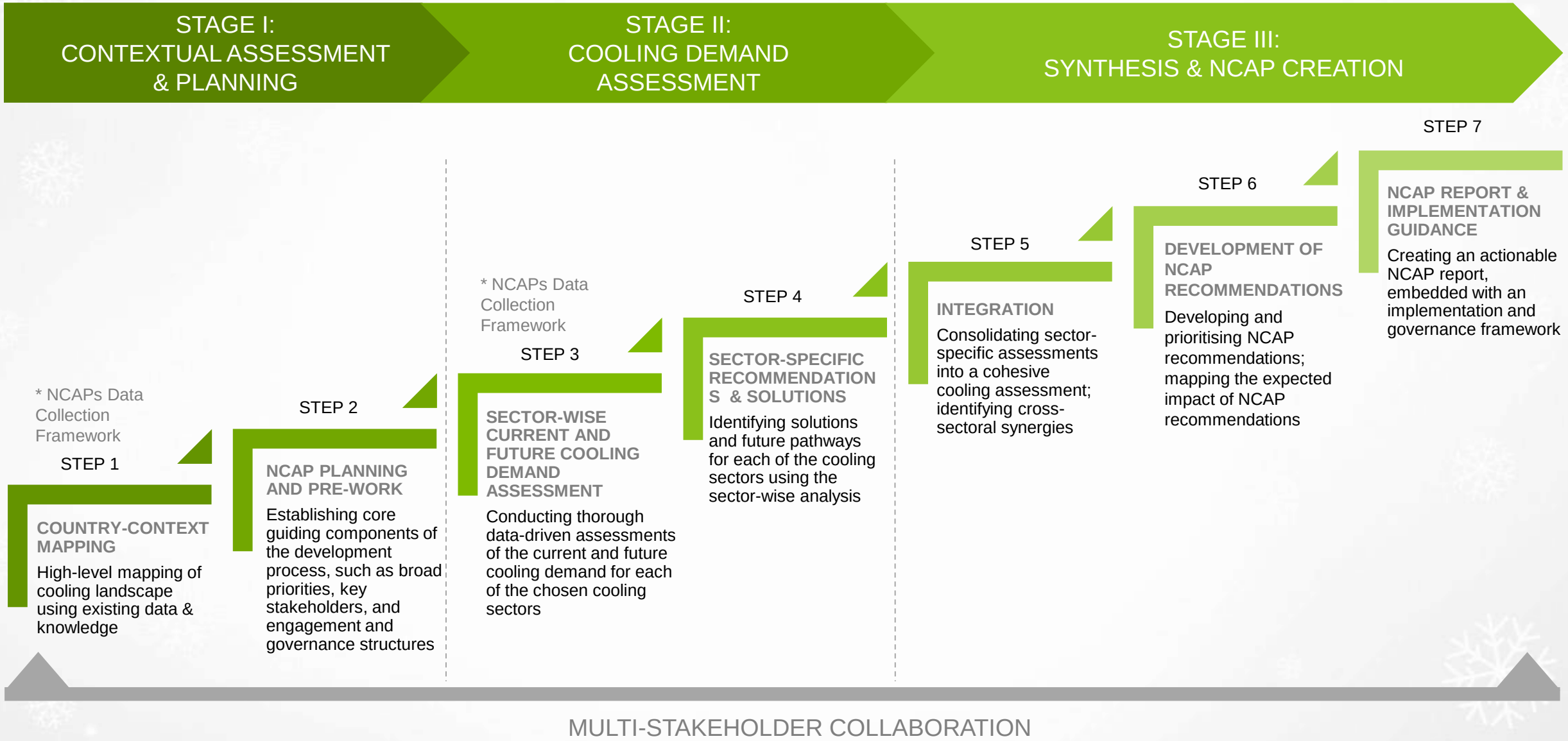
Methodology Underscores an Integrated Approach to Addressing Cooling

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

The NCAP Development Process



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

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

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*

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

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

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 Assessment 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

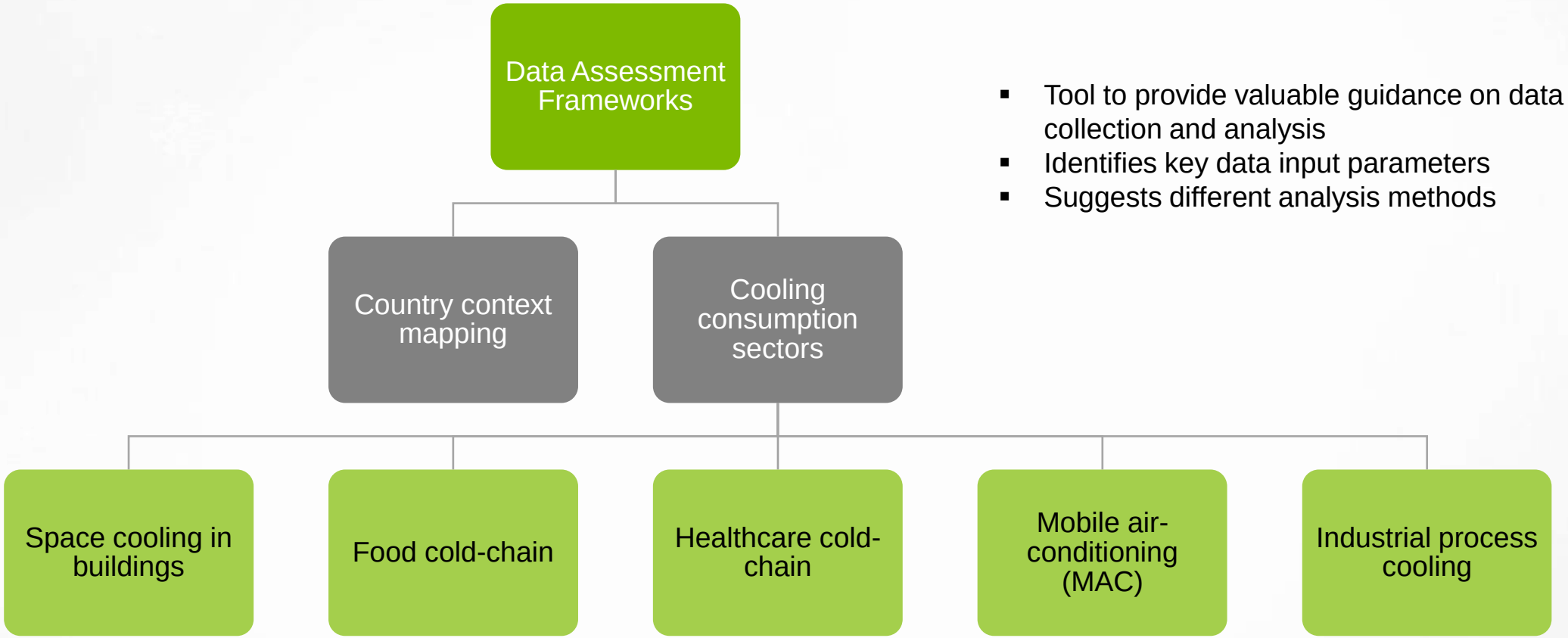
STEP 7

NCAP REPORT & IMPLEMENTATION GUIDANCE

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

MULTI-STAKEHOLDER COLLABORATION

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

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

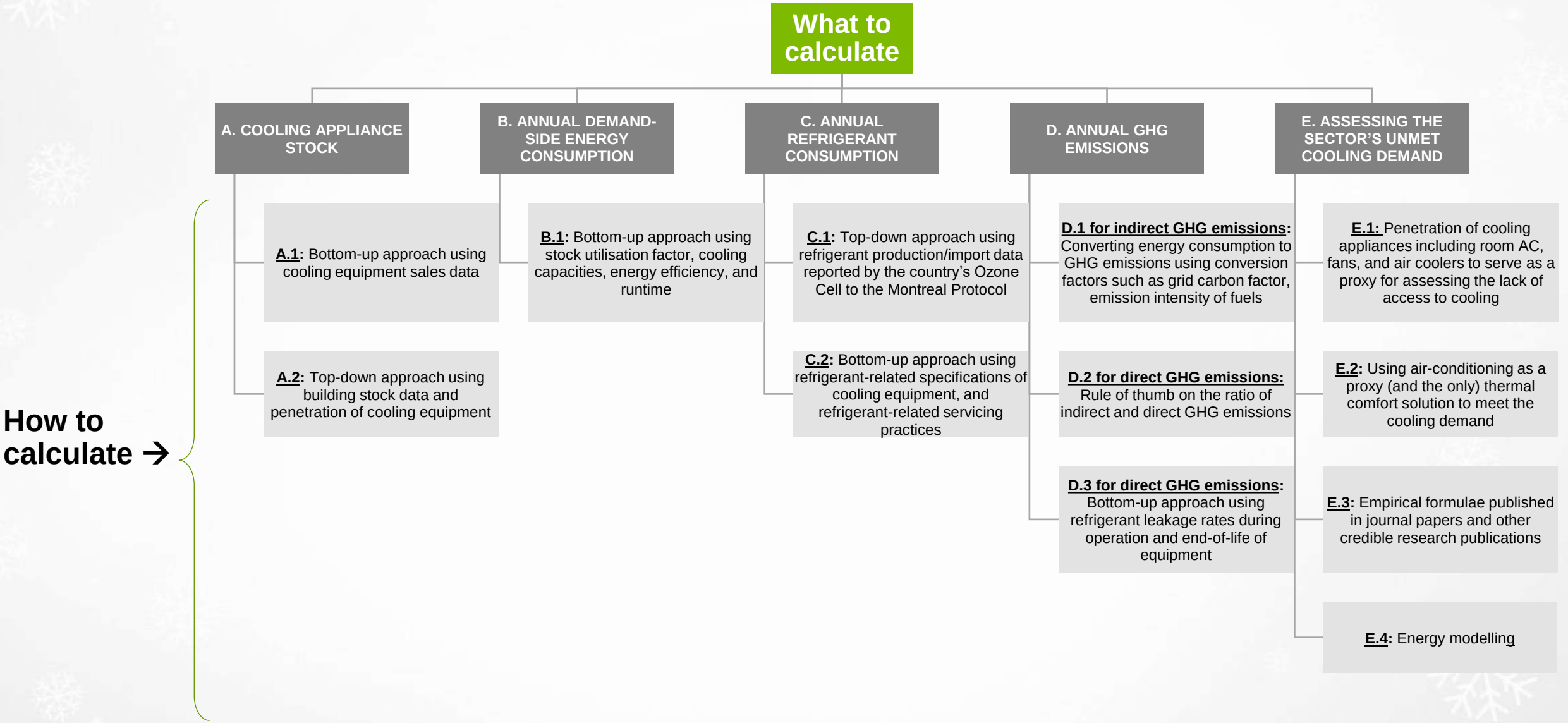
- Estimate the baseline rigorously

Activity 7: Project future growth scenarios

Main elements

- Project at least 2 future growth scenarios
  - 1 business as usual scenario
  - At least 1 intervention scenario

Example: Data Analysis Pathways for Space Cooling in Buildings



Example: Sector Orientation: Food Cold-chain

Sector description	Sector mapping	Considerations	Key data indicators
• Chain of logistics activity to service the market connectivity of perishable products from the production stage to consumers	• 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	• 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	• 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

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

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 Assessment 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

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

THANK YOU