



DISTRICT ENERGY
IN CITIES
INITIATIVE

E-TRAINING PROGRAM DISTRICT COOLING DEVELOPMENT







MODULE 2. STAKEHOLDER COORDINATION IN DCS

MODULE 2. STAKEHOLDER COORDINATION IN DCS

LEARNING OUTCOMES

Objective: share tools to effectively undertake stakeholder coordination in district cooling projects

By the end of this module, you will be able to:

-  Describe, understand and discuss the role of stakeholder coordination in district cooling (DC) development;
-  Recognise and be able to apply key steps for stakeholder coordination in DC projects;
-  Become aware of best practices in stakeholder coordination in DC projects at national and local level;
-  Identify key measures to ensure strong stakeholder coordination in DC projects;

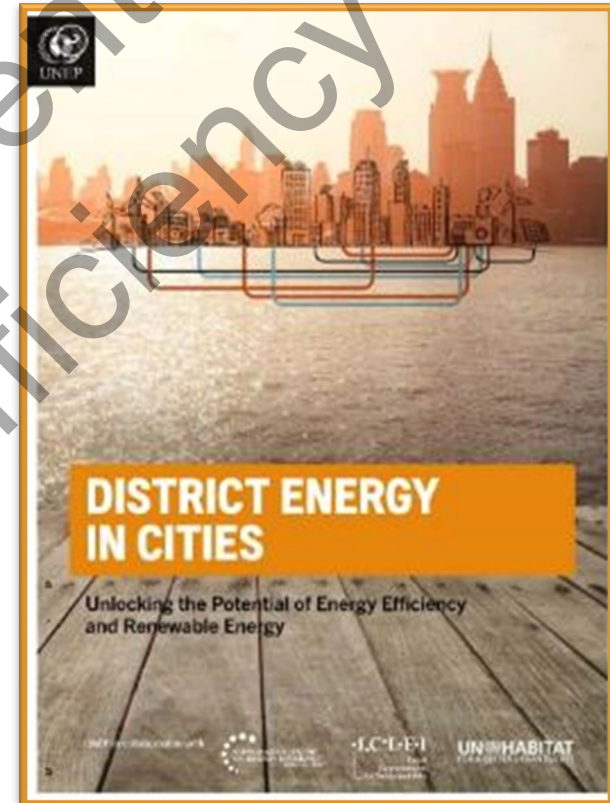


MODULE 2. STAKEHOLDER COORDINATION IN DCS

KEY STEPS IN DISTRICT ENERGY PLANNING

Key Steps in District Energy planning

1. **Assess** existing energy and climate policy objectives, strategies and targets and identify catalysts
2. **Strengthen** or develop the institutional multi-stakeholder coordination framework
3. **Integrate** district energy into national and/or local energy strategy and planning
4. **Map** local energy demand and evaluate local energy resources
5. Determine relevant **policy design** considerations
6. Carry out **project pre-feasibility** and viability
7. Develop **business plan**
8. Analyse **procurement options**
9. Facilitate **finance**
10. **Replicate**



Source: District Energy in Cities. Unlocking the Potential of Energy Efficiency and Renewable Energy

MODULE 2. STAKEHOLDER COORDINATION IN DCS ITS RELEVANCE

The need for stakeholder coordination in district cooling systems (DCS) projects

- DCS are **inherently more complex than BAU** and higher efficiencies require **greater coordination**.
- Not coordinating might lead to problems during project development.
- **Developing DCS is multi-dimensional** and concerns all levels.
 - It also **requires the engagement of multiple stakeholders from different institutions** that are not necessarily used to working together.
 - There are sector integration opportunities that need to be encouraged.



Image: Unsplash

MODULE 2. STAKEHOLDER COORDINATION IN DCS

DEFINITION

Stakeholder Coordination

Refers to the process by which an organization involves people who may affect or be affected by actions derived from the project. Source: Carbon Trust, 2018



Image: Rawpixel

- A stakeholder can be **internal or external** to an organization
- They are affected by the outcomes of a project or initiative and **can provide guidance** on the progression of a defined scope of work
- It is crucial to acknowledge and manage everyone's perspective and create a **common working framework** for values, rights, expectations and responsibilities

MODULE 2. STAKEHOLDER COORDINATION IN DCS

DEFINITION

Stakeholder coordination: What it is – and what it is not

Stakeholder coordination IS

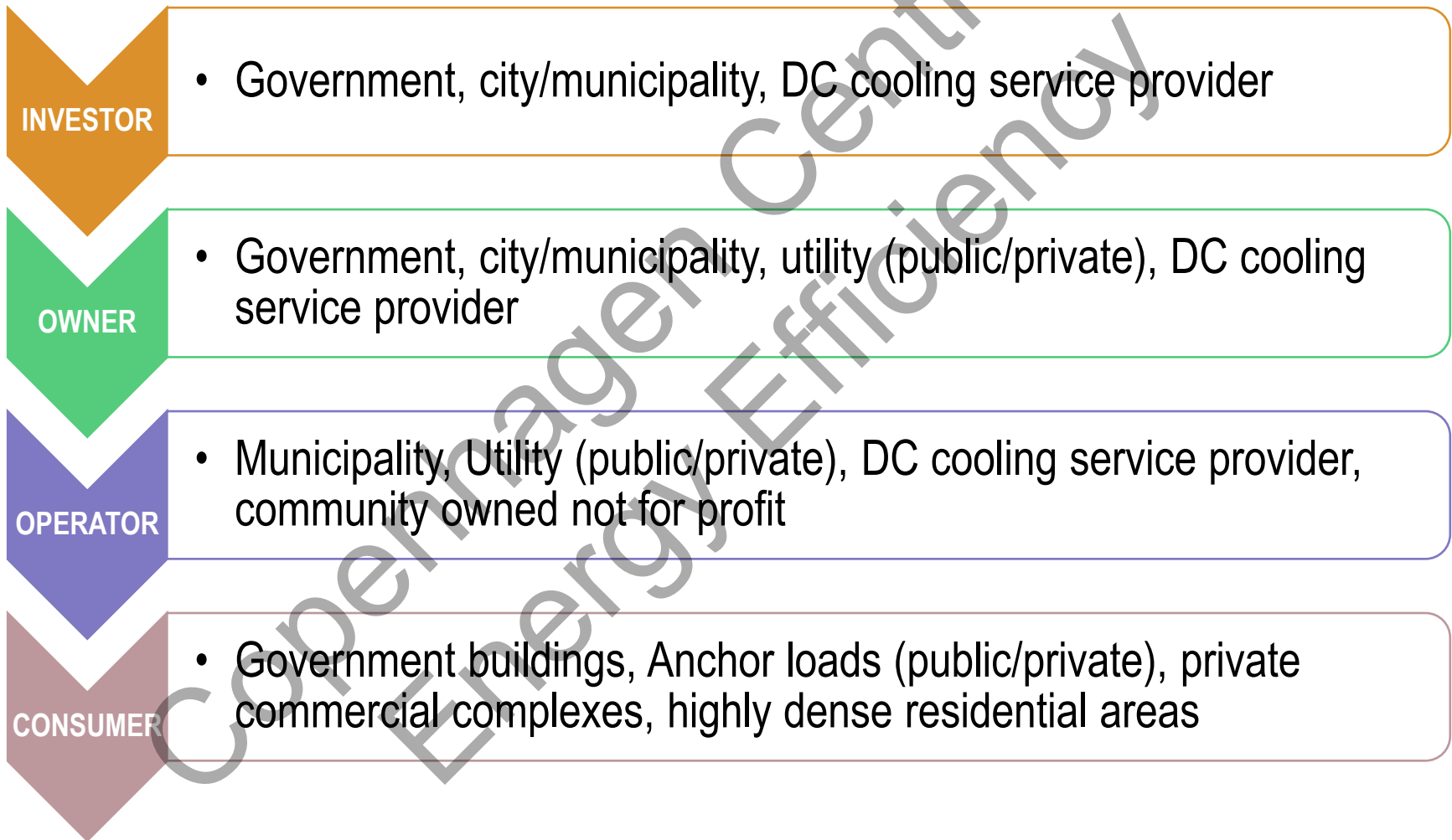
- Genuine multi-lateral process
- Meaningful dialogue where views are respected and taken seriously
- A collaborative exercise to reach a solution that works
- Focused on outcomes – e.g. a project that everyone buys into, general happiness
- Structured and systematic engagement
- Project development

Stakeholder coordination IS NOT

- One way communication
- Process where views are managed and people driven in one direction
- Pitching or selling a pre-determined solution or project
- Focused on outputs – interviews have been held therefore stakeholders have had their say
- Conversations with the people you know or think you need to talk to
- Behaviour change

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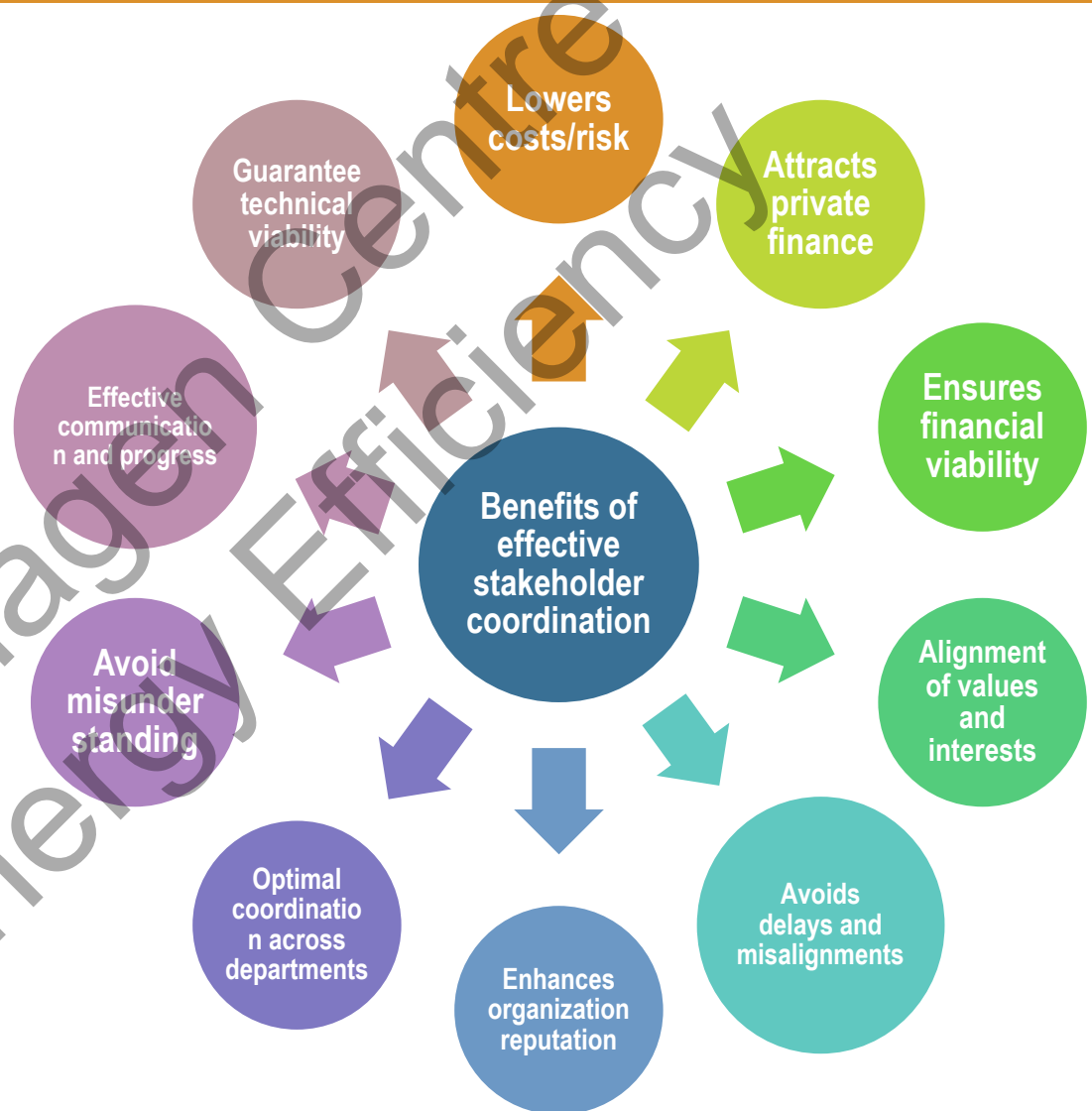
STAKEHOLDER GROUPS IN DC PROJECTS



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BENEFITS OF EFFECTIVE COORDINATION

- An **appropriate identification** and **involvement of the** stakeholders is crucial to ensure the success of the DC development, including its financial and technical viability.
- Stakeholder coordination will also help **to reduce possible controversies or information asymmetries**.





MODULE 2. STAKEHOLDER COORDINATION IN DCS

BENEFITS PER STAKEHOLDER GROUP

Benefits per stakeholder



Public Authorities (National & Local scale)

- Carbon reduction targets
- Introduction of renewable energy sources
- Energy security
- Create local jobs
- Reduce local air pollution
- Reduce energy poverty



Investors & capital providers

- A reliable and as fast as possible return on investment and profit



Utility companies

- Synergies with other utilities and energy sources



Building developers

- Profitable construction project



Customers

- Reliable energy supply
- User-friendly appliances
- Lower energy costs
- Indoor air quality



Citizens

- Local job creation
- Energy security
- Local air pollution reduction
- Energy poverty reduction



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BENEFITS OF EFFECTIVE COORDINATION

At project-level strong stakeholder coordination can deliver:

At the project-level coordination could **lower overall costs**, significantly **lower risks** and **create a more attractive project to investors**

For e.g. **network routing** with other utilities.

DC Stakeholder Group members (DISCOM, water, gas utility, sanitation dept. etc.) have knowledge of:

- Existing pipe network under the streets
- Planned public works or road relaying

Stakeholder coordination can help projects lower costs by:

- Identifying underground obstacles (e.g. water main) during design and construction
- Co-locate DC pipes with other infrastructure
- Undertake maintenance works on other utilities or road relaying in parallel to DC network construction

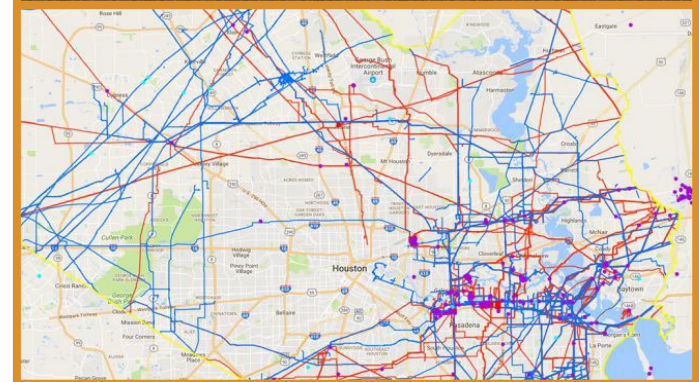
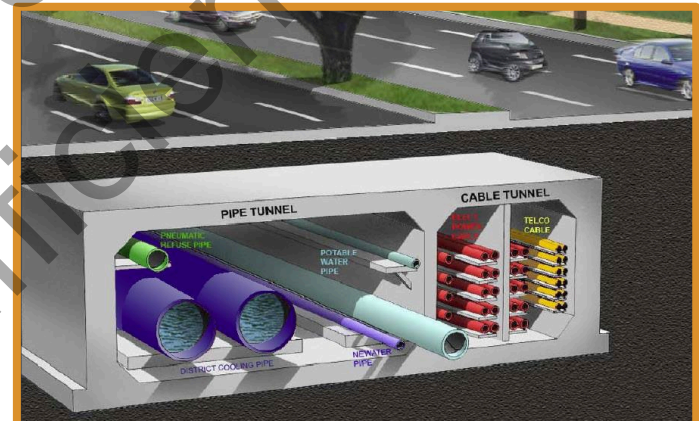


Image: Top- Marina bay MUT Singapore,
Bottom- American Geoscience Institute

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BENEFITS OF EFFECTIVE COORDINATION

At city-level strong stakeholder coordination can deliver:

1- Strategy development

- Incorporation of DCS into diverse, existing city strategies, targets and plans (Master Plan, Smart city plan, Solar cities, Low emission development plan)

2- Energy mapping

- Improved data and knowledge sharing for and energy mapping to identify potential demand and source locations
- Early project identification

3- DCS and Urban Planning

- Development of a long-term city plan for DCS
- Streamline DCS approval process

4- Policy

- Multi-stakeholder input to policy development
- Advocacy for policy change



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BENEFITS OF EFFECTIVE COORDINATION

Stakeholder coordination to support strategy development

1- Strategy development

- Cities can drive DCS development towards city objectives by incorporating DCS into existing strategies and targets

Electricity

- DCS can lower capacity constraints and increase the resilience of the power grid
- DCS can deliver on electricity objectives in a city's Area-based development under the Smart City Mission
- DCS can unlock higher renewables shares linked to Solar City Master Plan

Low carbon development

- Incorporate DC into refrigerant phase out plans
- Identify role of DCS in controlling local air pollution

Water & sanitation

- Reduce potable water use for cooling by making available treated sewage effluent for DC
- Biogas from waste water treatment used in trigeneration

Waste management

- Waste incinerators can sell excess heat to DCS through absorption chillers
- Biogas production for use in trigeneration



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BENEFITS OF EFFECTIVE COORDINATION

Stakeholder coordination for energy mapping

2- Energy mapping

- Identify potential DC projects, cool sources and expansion and interconnection opportunities. Identify priority and opportunity zones for DC.

Collection and update of data in an energy mapping requires diverse stakeholder input

e.g. existing and upcoming building developments

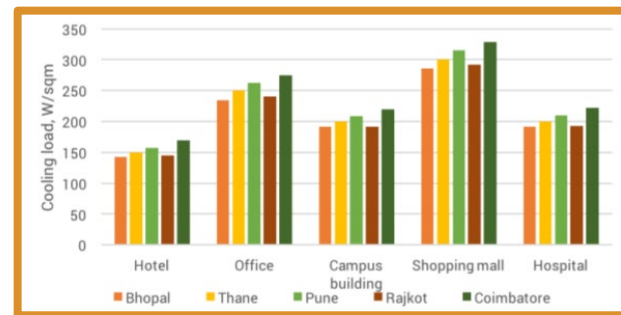
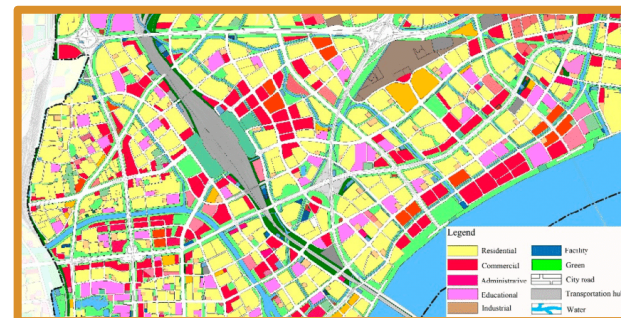
- Real estate developers
- Building owners
- Department of Planning

e.g. benchmarks for cooling and power demand

- Building owners, developers, architects
- DISCOMs
- AHSRAE/ISHRAE

e.g. waste heat sources & renewables

- Industry groups
- Incinerators, power plants





MODULE 2. STAKEHOLDER COORDINATION IN DCS

BENEFITS OF EFFECTIVE COORDINATION

Stakeholder coordination for Urban Planning

3- Urban planning

- Cities can unlock long-term investments in DCS through coherent long-term plans for district cooling and the integration of energy into urban and infrastructure planning.

For Urban planning there is the need to **coordinate inputs and consultation** of real estate developers, building owners, planning dept. and EESL to:

- secure concession zones for DC systems
- require new buildings to assess connection to DCS or development of new DCS
- update municipal zoning and FSI requirements to encourage dense, mixed-use developments suitable for DCS
- planning incentives for buildings developing/connecting to DCS

Coordinate city-departments and external stakeholders to incorporate DCS within:

Electricity and gas plans

Sanitation and water plans

Waste management plans

Smart City Plan

Planning policies and urban zoning

Transport

State-level plans



MODULE 2. STAKEHOLDER COORDINATION IN DCS

BENEFITS OF EFFECTIVE COORDINATION

Stakeholder coordination for development of DCS policy

4-Policy

- Cities can incentivize and remove barriers and risks to DCS development through streamlined approvals and permitting procedures, local policy development and advocacy for state or national-level policy changes

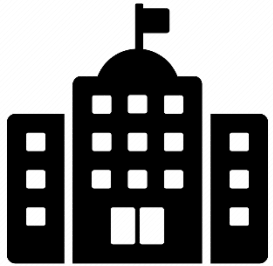
Examples of building policies

- Align DC with rollout of Energy Conservation Building Code (ECBC) (joint workshops, demonstration projects, incentives)
- Adapt development regulations to include FSI bonuses for buildings that develop or connect to DC networks and require 'DC ready' buildings in particular priority zones
- Incorporate DC into rehabilitation plans for urban neighborhoods including retrofitting of cooling systems
- Require new large-scale developments to include DC



MODULE 2. STAKEHOLDER COORDINATION IN DCS

WHAT CAN DIFFERENT STAKEHOLDERS DO?



Ministry of Power and Ministry of Housing and Urban Affairs

Short term (0-5 years)

- Develop roadmap for uptake of DCS in India
- Formulate a steering committee to lead with a focussed approach
- Train and build capacities, demonstrate projects, demonstrate business models
- Develop monitoring and verification frameworks
- Initiate a District Cooling Code

Medium term (5-10 years)

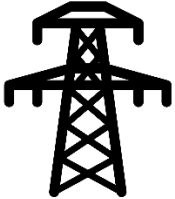
- Develop policies to include DCS at master planning level, linking with MoHUA's LAP (local area plan) and town planning schemes
- Include DC principles in building by laws
- Adoption of technology in smart cities

Long term (>10 years)

- Make it mandatory to include DCS in future master planning

MODULE 2. STAKEHOLDER COORDINATION IN DCS

WHAT CAN DIFFERENT STAKEHOLDERS DO?



DISCOMS and Electricity Regulatory Commission

Short term (0-5 years)

- Support Ministry of Power in developing a District Cooling Code
- Support in developing business models for DCS
- Provide GST exemption on chilled water and lower electricity tariff for DC plants

Medium term (5-10 years)

- Ensure uninterrupted electricity for the land parcels sold with mandatory DC connection
- Provide inputs in formulation of District Cooling Code

Long term (>10 years)

- Provide fee waiver on transmission and distribution losses, electricity duty and other surcharges

MODULE 2. STAKEHOLDER COORDINATION IN DCS

WHAT CAN DIFFERENT STAKEHOLDERS DO?



Bureau of Energy Efficiency (BEE) & State Designated Agencies (SDAs)

Short term (0-5 years)

- Recognize DC in energy conservation building code (ECBC)
- Amend provision of readiness of buildings to connect with DC network

Medium term (5-10 years)

- Provide technical and financial support for demo projects
- Train and increase awareness with the help of programs at state level

Long term (>10 years)

- Support program development and monitoring

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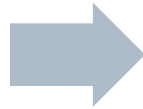
WHAT CAN DIFFERENT STAKEHOLDERS DO?

Municipalities & Town Planning Authority



Short term (0-5 years)

- Include DC at master planning stage
- Suggest changes in building by-laws
- Waiver property taxes, corporate taxes and energy tariffs



Medium term (5-10 years)

- Provide inputs in the formulation of DC code
- Mandate DC in high density mixed use developments, land parcels to be sold with mandatory DC connections
- Adopt incentive schemes, training and build capacity



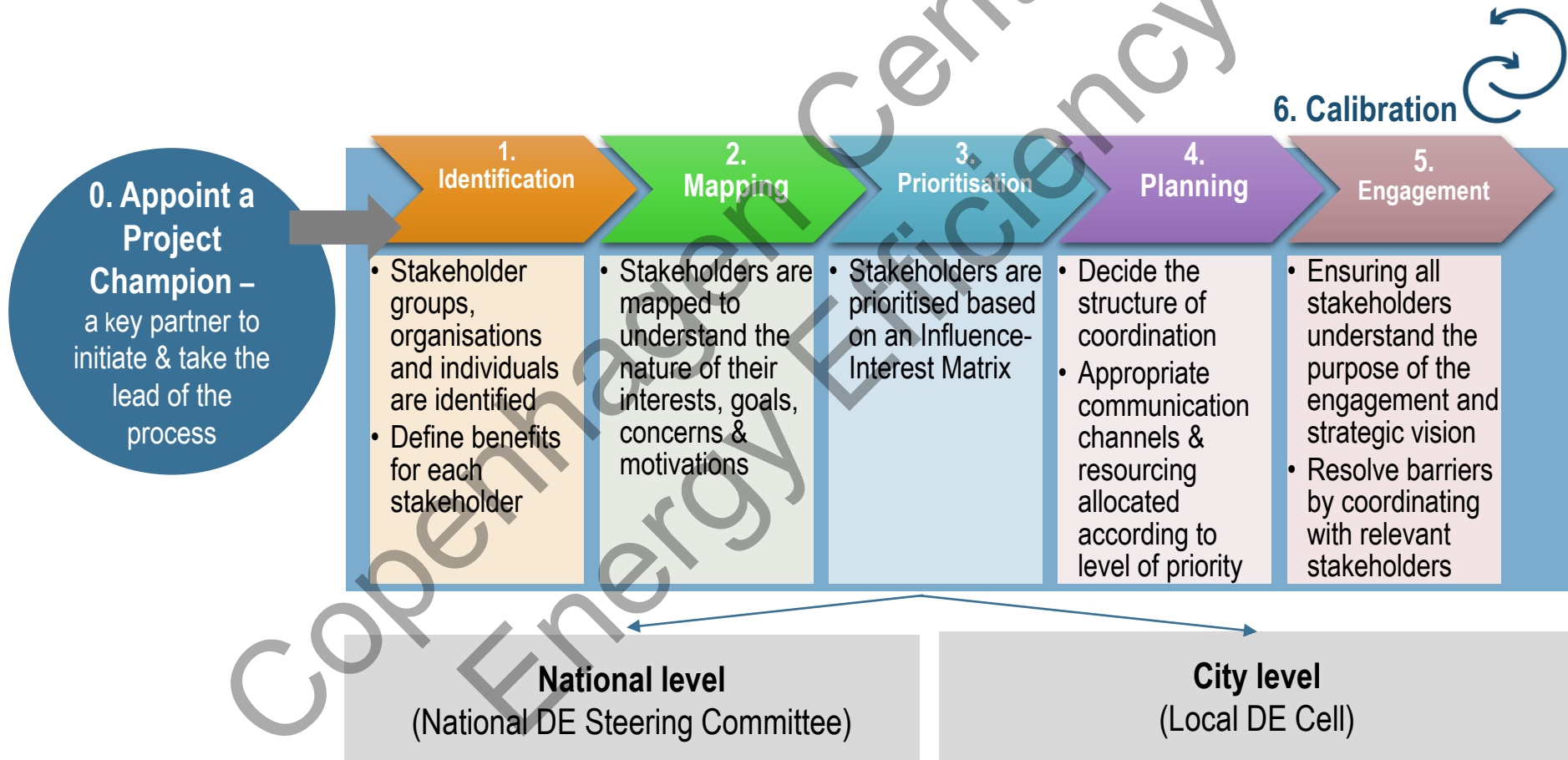
Long term (>10 years)

- Mandate adaption of DCS in all city level/urban local body level planning

MODULE 2. STAKEHOLDER COORDINATION IN DCS

FRAMEWORK FOR IMPLEMENTATION

A systematic framework for stakeholder coordination in DC



Source: Adapted from (Carbon Trust, 2018)

MODULE 2. STAKEHOLDER COORDINATION IN DCS

PRELIMINARY STEP – PROJECT CHAMPION

STEP 0: APPOINTING A PROJECT CHAMPION

It entails a number of activities. E.g. hosting meetings, identifying who needs to be in the group, inviting key players into the process, leading the discussion, etc.

- **Necessary resources** and funds should be committed from an **early stage** to effectively carry out stakeholder coordination and engagement and be sustained through appropriate funding streams over the long-term
- DC development requires a **key partner** who will be **taking the lead** of this process and:
 - Identify and involve stakeholders that can play a constructive role in realising DCS projects
 - Outline synergies and opportunities for cost-effective district cooling systems
- At a **local level**, it is usually the **Municipality** who should take this role. Alternatively the local utility
- At a **national level** it can be a **Ministry, or several Ministries, or a national institution** (e.g. in India it is Energy Efficiency Service Ltd. or EESL).

MODULE 2. STAKEHOLDER COORDINATION IN DCS

STEP 1 – IDENTIFICATION

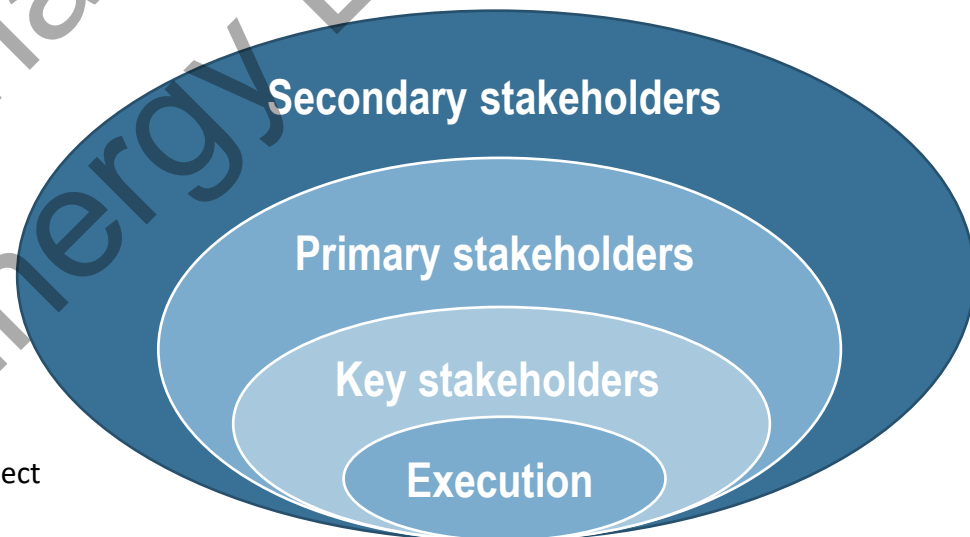
1. IDENTIFICATION

Goal:

Identify who are the main stakeholders in the DC development and will be part of the stakeholder coordination process.

Procedure:

- Stakeholder groups, organisations and individuals are identified according to their role, interest and influence in the project.
- The stakeholder list is updated and refined as the project progresses



Example of stakeholder identification in a DES project

MODULE 2. STAKEHOLDER COORDINATION IN DCS

STEP 2 - MAPPING

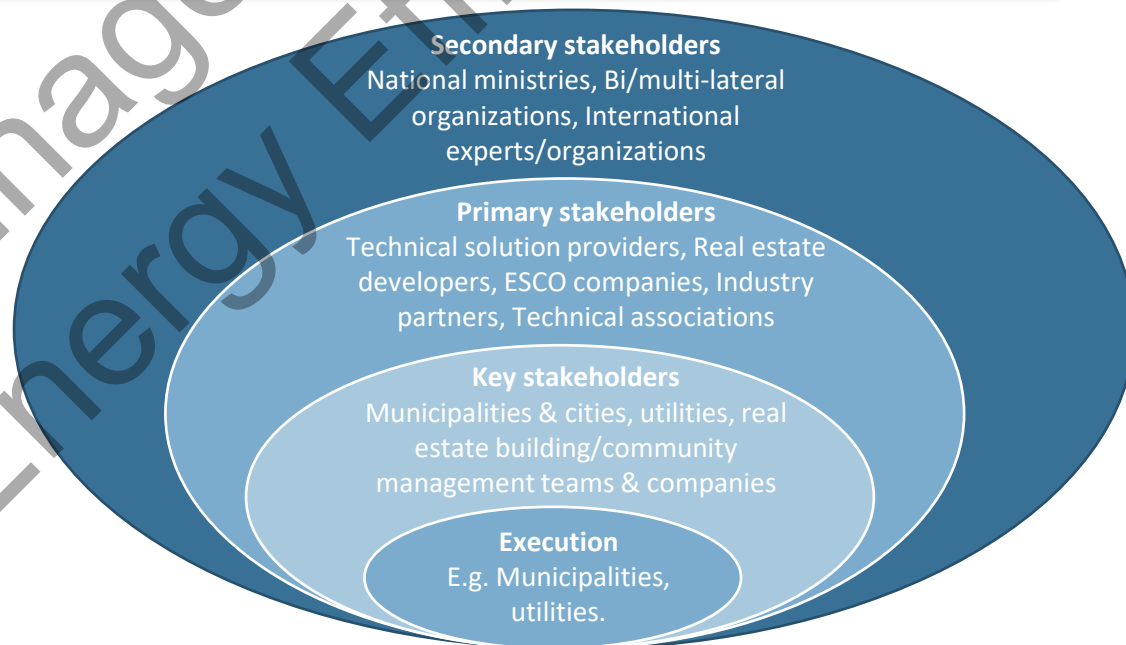
2. MAPPING

Goal:

To understand the flows of information, interest and influence between stakeholders and engage them more effectively and efficiently.

Procedure:

Stakeholders are mapped and profiled to understand the nature of their interests, goals, concerns and motivations.



Example of stakeholder mapping in a DES project

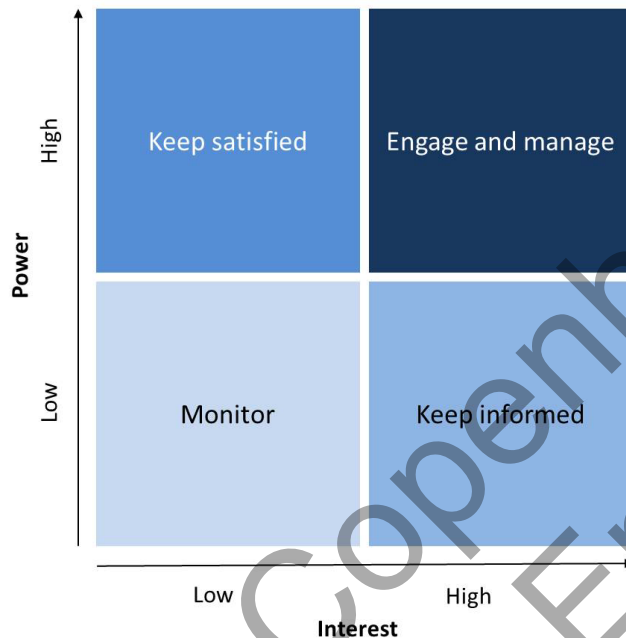
MODULE 2. STAKEHOLDER COORDINATION IN DCS

STEP 3 - PRIORITIZATION

3. PRIORITIZATION

Goal: Ensure that your resources are being used as effectively as possible

Procedure: Stakeholder prioritization can be done based on an Influence-Interest Matrix



Interest and Power matrix

Source: Johnson and Scholes (1999)

Stakeholders categories:

- **Engage and manage (key players):** significant interest and influence, support critical to the project's success > *understand and input the project.*
- **Keep Satisfied:** little interest in the project but nevertheless carry influence > *keep engaged and seek their views.*
- **Keep Informed:** have significant interest in the outcome of the project but do not have a direct role > *keep informed.*
- **Build Awareness:** Not the most crucial group, they should not be forgotten > *Don't forget and keep aware.*

MODULE 2. STAKEHOLDER COORDINATION IN DCS

STEP 4 - PLANNING

4. PLANNING

Goal: Ensure that appropriate communication channels and resources are allocated to stakeholders according to their level of priority

Procedure: develop a formal strategy to communicate with project stakeholders to achieve their support for the project. It specifies the frequency and type of communications, media, contact persons, and locations of communication events.

Stakeholder Communication Plan Template

Stakeholder	Power/Interest	Key Interest & Issues	Communication Vehicle	Frequency	Comments

Example of stakeholder planning sheet
Source: Smartsheet

MODULE 2. STAKEHOLDER COORDINATION IN DCS

STEP 5 - ENGAGEMENT

5. ENGAGEMENT

Goal: Ensuring all stakeholders understand the purpose of the engagement, as well as the strategic vision for the project.

Procedure: is an iterative and ongoing process.

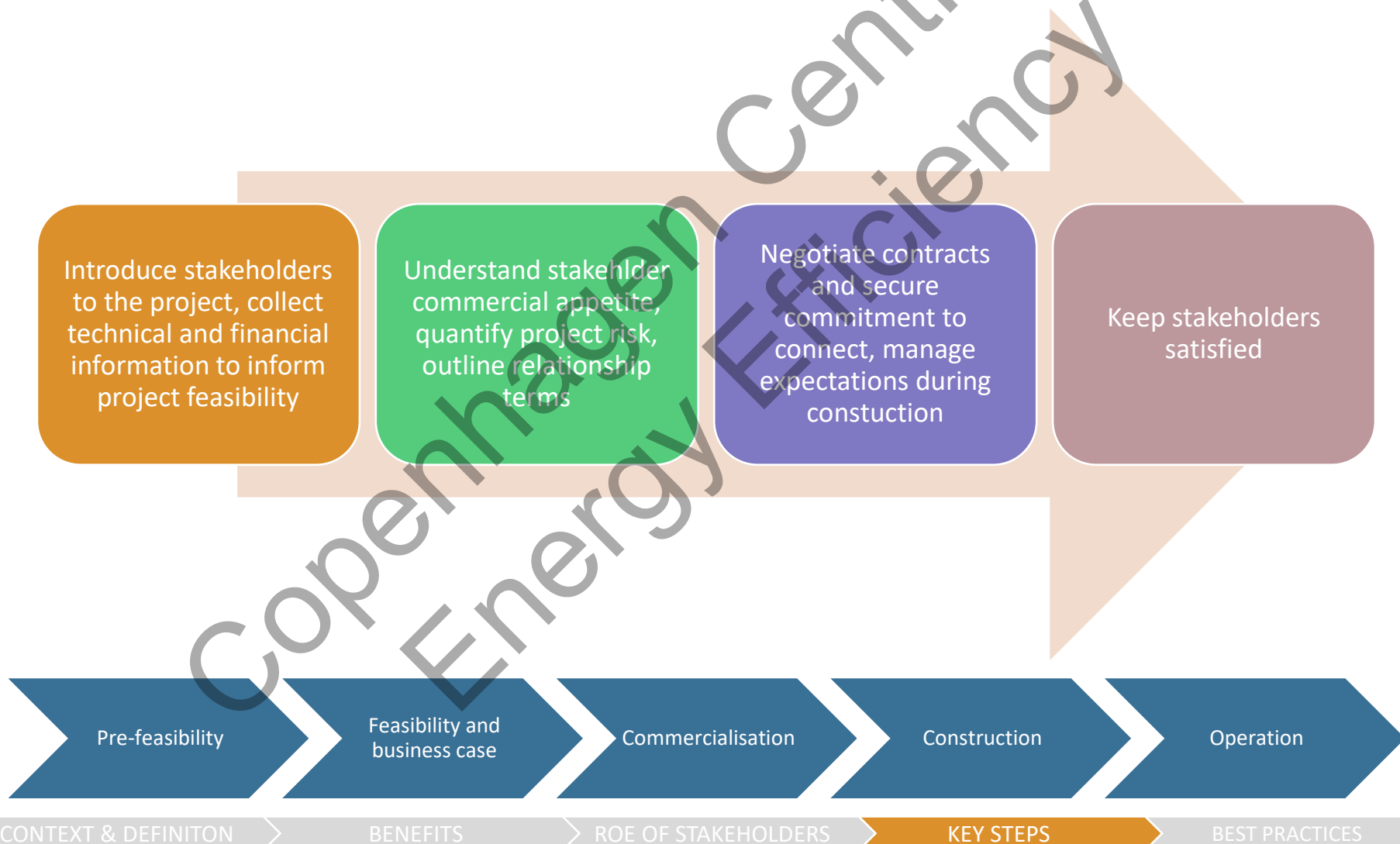
General recommendations

- A **stakeholder engagement plan** will need updating as you find out more about both your stakeholders and your project.
- Ensure all team members capture information in a **clear and structured format**.
- The outcomes should help shape the **overall project direction** and underpin **key decisions** throughout the project development.
- Stakeholder engagement oftentimes benefits from **early actions**.
- Make sure the stakeholders can see themselves in the process and are willing to be **engaged**.



MODULE 2. STAKEHOLDER COORDINATION IN DCS ENGAGEMENT THROUGHOUT THE PROCESS

Varying the engagement throughout the project development process



MODULE 2. STAKEHOLDER COORDINATION IN DCS

GENERAL ORGANIZATION EXAMPLE



MODULE 2. STAKEHOLDER COORDINATION IN DCS

COORDINATION AT DIFFERENT LEVELS

National level

(National DC Steering Committee)

- Create a national DC Committee
- Clearly communicate benefits of DCS to all stakeholders
- Ensure that at a national level are well aware of the DCS
- Reserve resources (time and budget) for capacity building in DCS
- Communicate with regional and city authorities to ensure their commitment

Sub-nation level (e.g. city)

(Sub-national DC Cell)

- Create a local multi-stakeholder coordination group
- Incorporating DCS under city strategies from an early stage
- Reserve resources (time and budget) for capacity building in DCS
- Clearly understand & communicate project development and timelines
- Communicate and align with the national-level DC Committee on priorities, goals and plans

- Both stakeholder groups should have an effective communication and be aligned in terms of goals, plans and expectations.
- This is a task of the Project Champion.



DISTRICT
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CASE STUDIES



Thane, India, Source: thanephotos

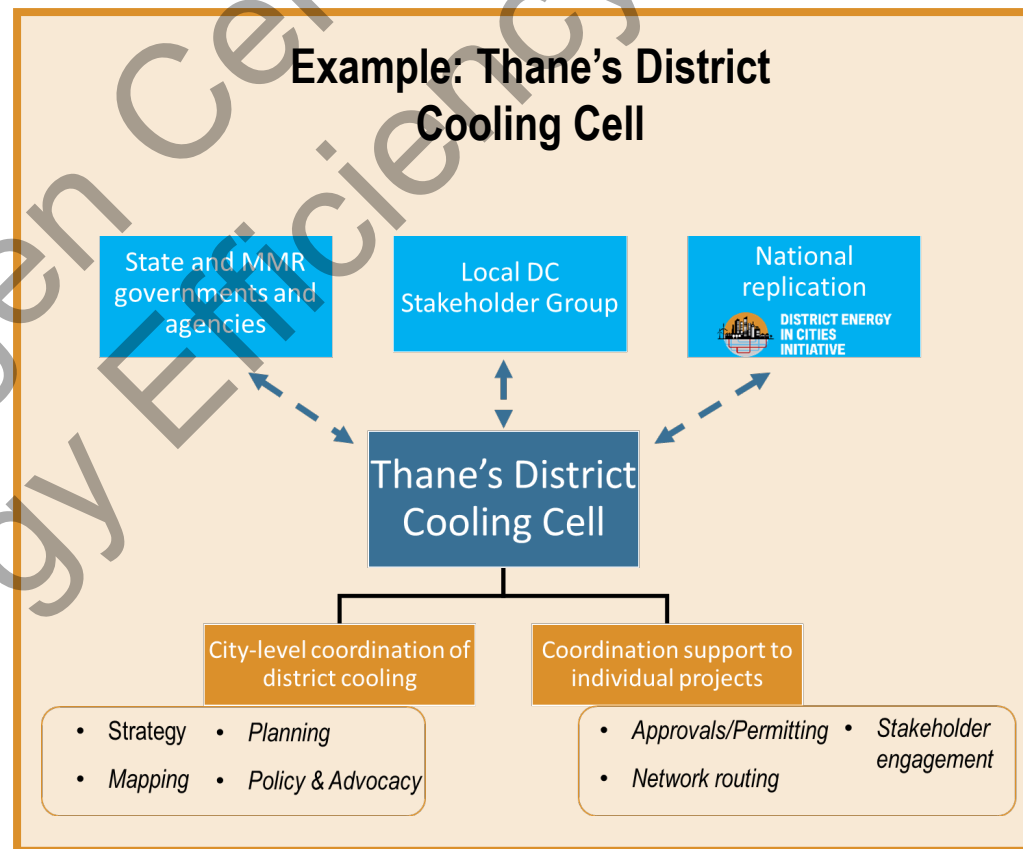


MODULE 2. STAKEHOLDER COORDINATION IN DCS

CASE STUDY: THANE, DC CELL SET-UP

Activities of District Cooling Cell

- Oversee **development of DC project** pipeline across the city
- **Develop long term strategy** for cluster connection
- Implement **planning policies** to secure new DC connections and ensure buildings are future proofed for connection
- **Coordinate timing** of laying of utilities and roadworks to save cost/minimize disruption
- **Develop financing mechanisms and business models** to support DC
- Receive appropriate **training**, disseminate information and advice



Source: Functions and multi-stakeholder linkages of envisaged District Cooling Cell

MODULE 2. STAKEHOLDER COORDINATION IN DCS

CASE STUDY: THANE, MAIN STAKEHOLDERS



UNEP, DES Initiative: Overseeing delivery of project, creating political buy-in, initial technical and financial rapid assessment of sites by C2E2, stakeholder engagement, quality assurance of Carbon Trust outputs, provision of cost data and some methodological assumptions, and information from initiative partners such as Tabreed, Clarke Energy, Shell India



Carbon Trust: Deliver pre-feasibility study technical and financial assessments, delivery of presentations/workshops, conduct site visits



ICLEI: Local stakeholder engagement, data collection, and on-ground technical support



Thane Municipal Corporation: potential developer/enabler of district cooling in Thane, sharing local insights and information, stakeholder facilitation



EESL: Potential investor/developer of district cooling in Thane, informing scope of financial model, sharing national insights and information



Co-funded by the European Union

IFC: Funding support to study, interest in investing in district cooling in India, informing scope of financial model

Engagement with other stakeholders including gas grid operator, DISCOM, developers, potential network customers etc.



MODULE 2. STAKEHOLDER COORDINATION IN DCS

CASE STUDY: THANE, DC CELL SET-UP

How to set up DC cell

1-Define scope -
could start as District
Cooling and then
widen to longer-term
energy developments



**2-Define a Terms of
Reference** with clear
roles and
responsibilities



**3-Identify lead
persons/department
and dedicate resource**



**4-Ensure clear
accountability
and transparency
in decision-making**



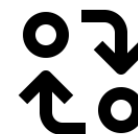
**5-Avoid complex
accountancy and
governance levels**



**6-Regular
meetings and
reporting**



**7-Support
replication to
other Indian cities**





MODULE 2. STAKEHOLDER COORDINATION IN DCS

KEY TAKEAWAYS

Some of the main aspects we have seen in this module are:

- **Main stakeholders involved** in DC projects are: Public authorities, Investors, Utilities, Developers, Customers & Residents.
- **Stakeholder coordination** is crucial to clearly communicate benefits of DCS and ensure the **financial and technical viability** of district cooling systems.
- Effective stakeholder coordination leads to reduced project costs, fewer delays, attracts private finance, proper communication and progress while also providing the stakeholders involved with multiple benefits.
- **Six main steps** are recommended to develop a stakeholder coordination strategy in DC projects, namely:
 - Step 0: Appoint a “Project Champion”
 - Step 1. Identification
 - Step 2. Mapping
 - Step 3. Prioritization
 - Step 4. Planning
 - Step 5. Engagement
- Stakeholder coordination should take place at **national and city level**.



MODULE 2. STAKEHOLDER COORDINATION IN DCS

RECOMMENDATIONS

Some recommendations for stakeholder coordination are:

- It should be a genuine multi-lateral collaborative process where views of all stakeholders involved are listened to and respected
- It should be a structured and systematic process with a focus on project progress and development
- Stakeholder coordination must be carried out following the steps mentioned in this module and it is vital to select an effective project champion who can actively engage and coordinate with stakeholders and establish efficient communication channels
- When hurdles arise during project development, the right stakeholders must be identified and engaged with to overcome the barriers and ensure progress is not affected



THANK YOU FOR COMPLETING THIS MODULE!

For more information about the initiative or this Training, please visit the following websites or contact:



www.districtenergyinitiative.org



unep.org



c2e2.unepdtu.org



E-TRAINING PROGRAM

DISTRICT COOLING DEVELOPMENT

In the upcoming modules, you will learn about ...

Module 3

- Energy mapping and data collection to identify long-term opportunities for district cooling systems

Module 4

- Strategy development: Incorporating district cooling into a local energy and low carbon systems

Module 5

- Carbon heating and cooling strategies

Module 6

- Business models for sound sustainable district cooling systems



MODULE 2. STAKEHOLDER COORDINATION IN DCS

STAKEHOLDERS IN DISTRICT COOLING

Which stakeholders when?

If limited heat and cool data

- **Engage with utilities** currently providing cooling if available
- Engaging with current utilities can provide **access to customers** and can identify **highest potential areas**.

If development too disruptive or costly

- Work with **local authority departments** to lay network at same time as other works such as road resurfacing or new area development.

If connections need to be guaranteed

- Involve **housing associations, developers and large consumers** in district cooling planning

If counter-productive efficiency

- **Collaborate** with companies or **departments responsible for energy efficiency or renewables programmes** to ensure energy audits include current and future district cooling development and cross-subsidisation does not occur.

If waste heat or renewables want to be maximised

- Engage with **producers of waste heat** in the mapping process and project development.
- Coordinate with **municipal authority** to determine potential renewable sources

MODULE 2. STAKEHOLDER COORDINATION IN DCS

DEFINITION

Stakeholder coordination in DCS entails...

Project Champion(s)

- Project Champion(s) from within the city government and its agencies can play a key role in stakeholder coordination and engagement in the initial stages of district energy development.

Capacity building efforts

- In many occasions considerable capacity building efforts need to be undertaken to ensure that stakeholders are aware and capable of implementing DES.

District energy project development cycle and timelines

- They need to be clearly understood by stakeholders so that expectations are managed.

Allocation of the necessary resources and funds

- Necessary resources and funds should be committed from an early stage.

MODULE 2. STAKEHOLDER COORDINATION IN DCS

CASE STUDY: BELGRADE, SERBIA

Stakeholder organization example for project implementation

