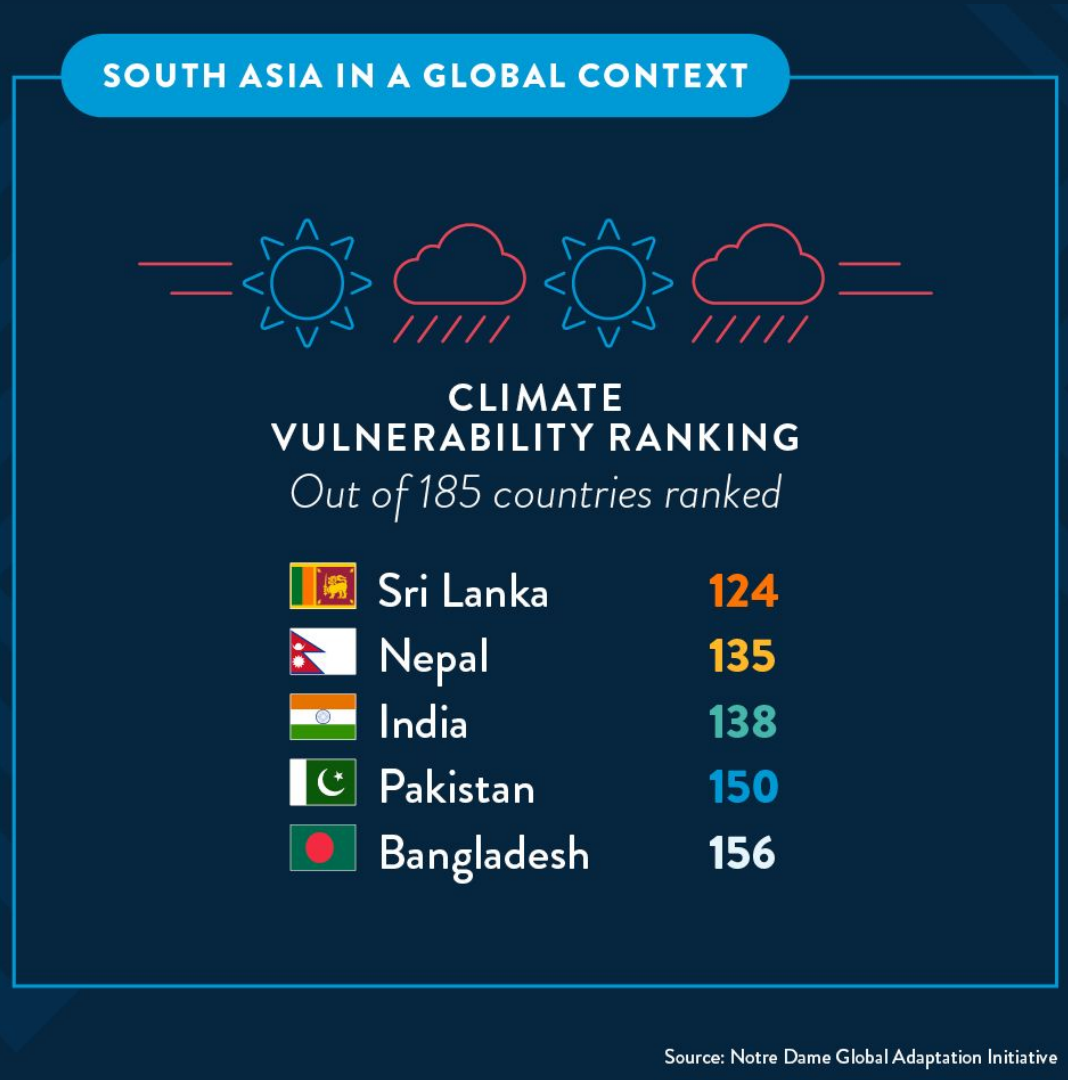
Day 2: Nov 29, 2023

Climate & Environmental Action



Comms Partner

ANDE SOUTH ASIA CONVENING 2023

Accelerating Action in the Region

ASPEN NETWORK OF DEVELOPMENT ENTREPRENEURS
SOUTH ASIA

Where does South Asia Stand in the Race to 2030? The Role of Cities as Units of Climate Action

Shruti Narayan
C40 Cities

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Dipti Salvi
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29 November 2023 | 11:00 AM - 12:15 PM IST

Comms Partner

Comms Ninja

Shruti Narayan, Regional Director, South & West Asia

C40 CITIES

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C40 Cities in South and West Asia

In conversation with ASPEN Network of Development Entrepreneurs

29 Nov 2023

Agenda

01. Introduction and Overview of C40

02. Leadership Standards and Innovation

Open for any questions

03. Approach to Solid Waste and Inclusive Climate Action

04. Approach to Freight Electrification in India

Open for any questions

C40 CITIES

01. Introduction and Overview of C40

Why do cities matter?

Cities occupy
2%
of the world's landmass

Cities host more than
50%
of the world's population

Cities generate over
80%
of the world's GDP

C40 CITIES

Cities are a hotspot of climate impacts and risks...

Cities consume around **75%** of the world's energy

Cities create over **70%** of energy-related greenhouse gas emissions

Cities are increasingly affected by heatwaves, storms, drought, flooding and sea-level rise

However, cities are also where the solutions lie…

Cities are:

- Diverse and innovative.
- More nimble and progressive than nation states.
- Financial and economic hubs
- **And led by dynamic leaders who are:**
  - Advocates for a green and just recovery from COVID-19.
  - Global leaders in the fight against the climate crisis.

Through green buildings, reliable water supply, renewable energy, sustainable transport systems, cities can lead all to a more inclusive, fairer society

C40 is a network of nearly 100 world-leading cities collaborating to deliver the urgent action needed to confront the climate crisis.

97 cities

7 regions

20% of the global economy

Directly representing 582 million residents

Influencing 896 million people living and working in the wider city

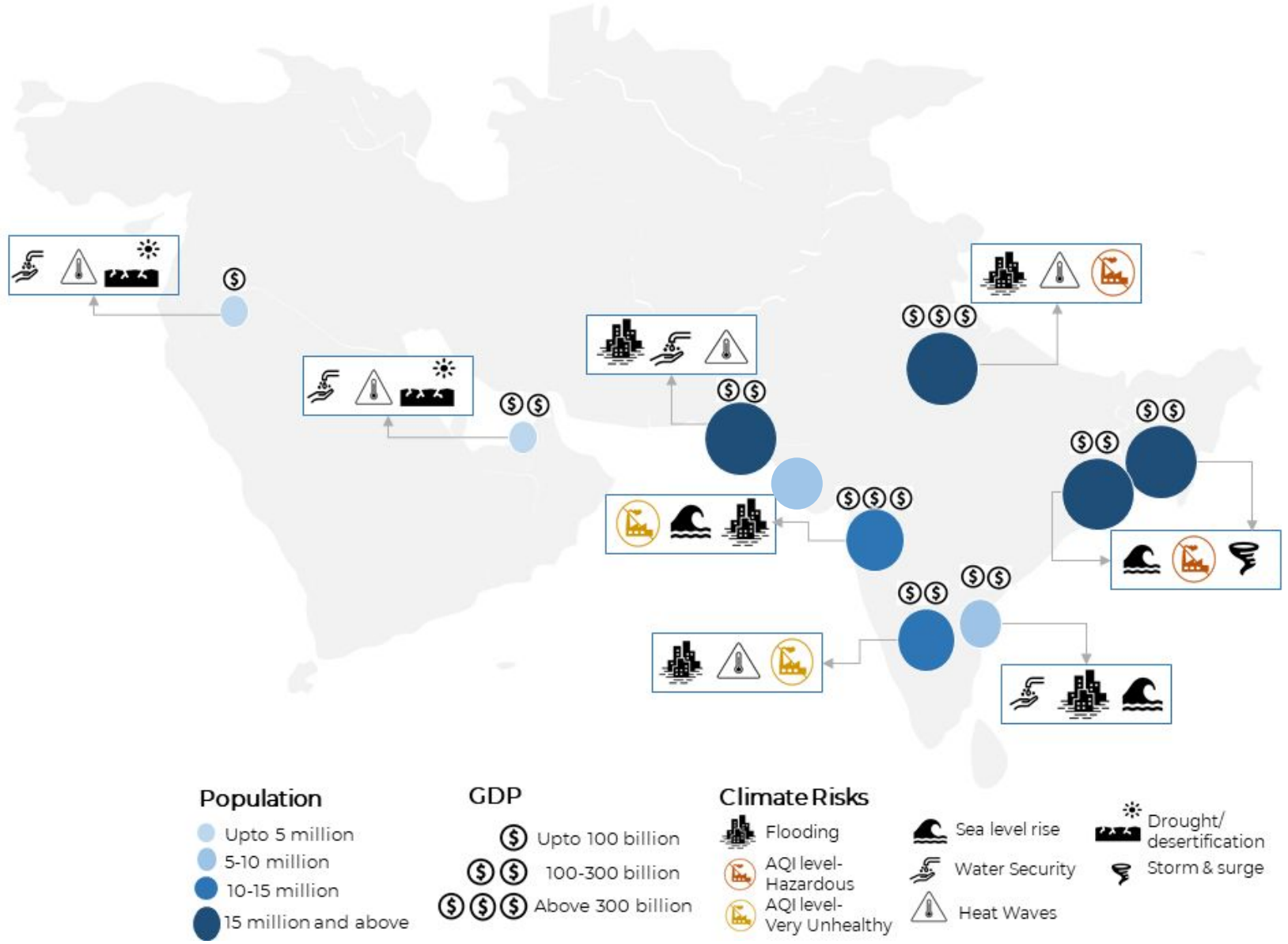
AFRICA: ABIDJAN – ACCRA – ADDIS ABABA – CAPE TOWN – DAKAR – DAR ES SALAAM – DURBAN (ETHEKWINI) – EKURHULENI – FREETOWN – JOHANNESBURG – LAGOS – NAIROBI – TSHWANE | **CENTRAL EAST ASIA:** BEIJING
CHENGDU – DALIAN – FUZHOU – GUANGZHOU – HANGZHOU – HONG KONG – NANJING – SHANGHAI – SHENZEN – QINGDAO – WUHAN – ZHENJIANG | **EAST, SOUTHEAST ASIA & OCEANIA:** AUCKLAND – BANGKOK – HANOI
HO CHI MINH CITY – JAKARTA – KUALA LUMPUR – MELBOURNE – QUEZON CITY – SEOUL – SINGAPORE – SYDNEY – TOKYO – YOKOHAMA | **EUROPE:** AMSTERDAM – ATHENS – BARCELONA – BERLIN – COPENHAGEN – HEIDELBERG
ISTANBUL – LISBON – LONDON – MADRID – MILAN – MOSCOW – OSLO – PARIS – ROME – ROTTERDAM – STOCKHOLM – TEL AVIV – VIENNA – WARSAW | **LATIN AMERICA:** BOGOTÁ – BUENOS AIRES – CURITIBA – GUADALAJARA – LIMA MEDELLÍN – MEXICO CITY – RIO DE JANEIRO – SALVADOR – SÃO PAULO – SANTIAGO – QUITO | **NORTH AMERICA:** AUSTIN – BOSTON – CHICAGO – HOUSTON – LOS ANGELES – MIAMI – MONTRÉAL – NEW ORLEANS – NEW YORK
PHILADELPHIA – PHOENIX – PORTLAND – SAN FRANCISCO – SEATTLE – TORONTO – VANCOUVER – WASHINGTON DC | **SOUTH & WEST ASIA:** AMMAN – BENGALURU – CHENNAI – DELHI – DHAKA – DUBAI – KARACHI – KOLKATA – MUMBAI

C40 CITIES

C40 in South and West Asia

11
cities

AHMEDABAD
AMMAN
BENGALURU
CHENNAI
DELHI
DHAKA NORTH
DHAKA SOUTH
DUBAI
KARACHI
KOLKATA
MUMBAI



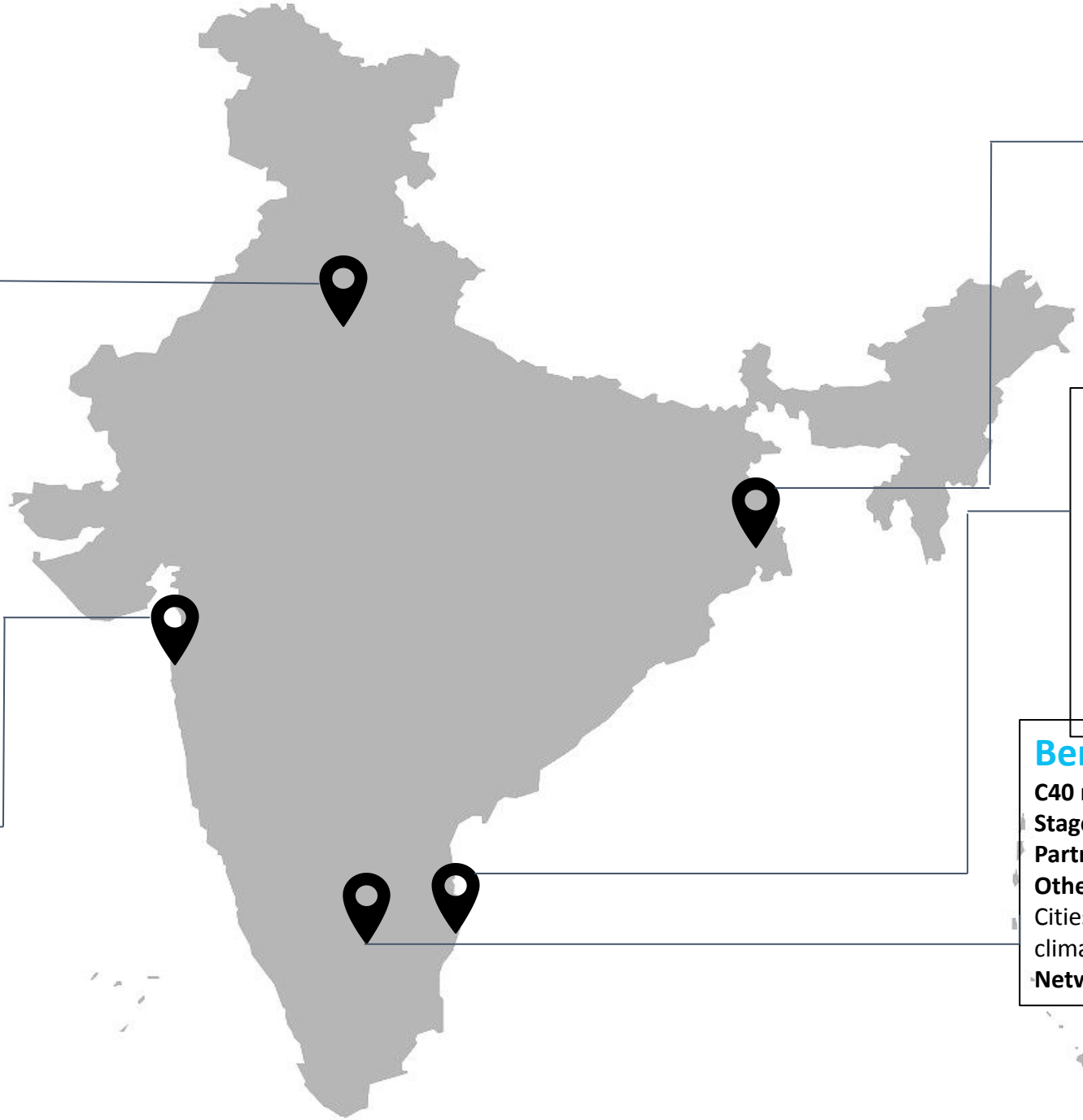
CAPs in India: An Overview

Delhi

C40 member since 2007
Stage: Completed GHG inventory and Climate Risk Assessment
Partners: SEEDS & TERI
Expected Completion: 2024
Other engagements: Clean Air Cities Accelerator, Urban Nature Accelerator, AQ TA
Networks: AQ, Adaptation implementation and water

Mumbai

C40 member since 2020, rejoined
Stage: Launched in March 2022.
Partners: WRI and Climate Voices
Other engagements: W4C, Climate Budgeting Pilot, Urban Nature Accelerator, City energy transition roadmap for E&B
Networks: Urban Flooding, Food and Waste



Kolkata

C40 member since 2015
Stage: GHG Inventory Completed
Partners: EU, GCOM , NIUA
Expected Completion: 2024
Other engagements: Clean Air Cities Accelerator
Networks: Transport, AQ, Waste

Chennai

C40 member since 2016
Stage: Launched in June 2023
Partners: UMC
Expected Completion: mid 2023
Other engagements: W4C, Urban Nature Accelerator, TUMI E-Bus mission
Networks: Urban flooding and land use planning

Bengaluru

C40 member since 2015
Stage: Launched on 27 Nov 2023
Partners: WRI
Other engagements: W4C, Clean Air Cities Accelerator, AQ TA, Inclusive climate action pilot
Networks: Transport, AQ

C40 CITIES

Note: Map for reference purposes only

What we do

C40 and our mayors are driving a green and just recovery from COVID-19 and are supporting cities to cut their fair share of emissions in half by 2030.

We do this by:

- **Raising climate ambition,** through 1.5°C climate action plans, high-impact declarations, the Cities Race to Zero programme and innovation.
- **Building equitable and thriving communities,** through our Inclusive Climate Action and Thriving Cities programmes.
- **Building a global movement,** through robust international diplomacy, advocacy and coalition-building with all sectors of society.
- **Scaling up climate action and sharing best practice** across key, high-impact sectors.
- **Facilitating access to finance** for climate change mitigation and resilience projects in cities.

How we do it?

PEER-TO-PEER EXCHANGE

TECHNICAL ASSISTANCE

RESEARCH & KNOWLEDGE MANAGEMENT

C40 CITIES

5 Sectors with Networks, Programmes & Forums

Catalysing new, better and faster climate action by helping cities learn from one another

C40 NETWORKS

Land Use Planning Network
Mass Transit Network
Mobility Management Network
Walking and Cycling Network
Zero Emission Vehicles Network
Zero Emission Freight Programme
ZEBRA Programme

Connecting Delta Cities Network
Cool Cities Network
Urban Flooding Network
Water Security Network

Food Systems Network
Sustainable Waste Systems Network
Waste to Resources Network

Clean Energy Network
Municipal Building Efficiency Network
New Building Efficiency Network
Private Building Efficiency Network
Clean Construction Forum
China Building Programme
South Africa Building Programme

Air Quality Network
Green Ports Forum

C40 CITIES

C40’s Leadership Standards

C40’s most distinguishing feature is that it operates on performance-based requirements rather than membership fees

C40’s Leadership Standards set the minimum requirements for all member cities and ensure the integrity of C40 as a network of climate leaders. .

2021-24 Leadership Standards:

1. PLAN

2. DELIVER

3. MAINSTREAM

4. INNOVATE

5. LEAD

LS1: PLAN

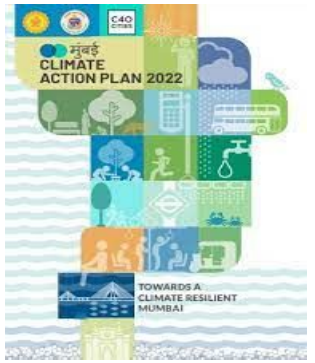
City has adopted a resilient and inclusive climate action plan, aligned with the 1.5˚C ambition of the Paris Agreement, and updates it regularly.

LS2: DELIVER

City remains on track in 2024 to deliver its climate action plan, contributing to increased resilience, equitable outcomes and halving overall emissions by 2030.

City Climate Action Plans (CAPS) integrate and embed climate action to enable widespread implementation and adoption. **Evidence based, data driven, and inclusive**, it lays out a strategy, including specific measures, to reduce emissions and adapt to the impacts of climate change.

Mumbai became South Asia's first city to launch a 1.5C aligned CAP. **Chennai** and **Bengaluru** have also now launched their climate action plans and are moving into implementation and mainstreaming.



C40 is also working with local partners in **Dhaka, Delhi, Kolkata, Karachi** towards their Climate Action Plans.

LS3: MAINSTREAM

City uses the necessary financial, regulatory and other tools at their disposal to address the climate crisis, mainstreaming their equitable climate targets into the most impactful city decision-making processes.

Climate Budgeting Pilot

A climate budget is a governance system that offers a way for cities to turn climate commitments into funded and measurable actions across city government. It embeds climate targets and considerations as part of a city's ordinary budgeting process.

Led by Oslo, which first pioneered this approach in 2017, a group of cities are working to pilot climate budgeting to their own contexts, including Barcelona, London, New York City, Tshwane and also **Mumbai.**

Integrating Master Plan with Climate Commitments

C40's Urban Planning work supports cities to develop, implement and share planning strategies and regulations that set a framework for sustainable and equitable urban growth. Through Land Use Planning, Green and Thriving Neighbourhood networks, C40 cities are working to integrate CAP goals with city planning.

The city of **Chennai** has partnered with C40 and World Bank to integrate CAP actions into the city's upcoming master plan.

INNOVATE (#4): City innovates and takes inclusive action to address emissions and climate risk beyond the direct control of the city government, such as from goods & services consumed in the city

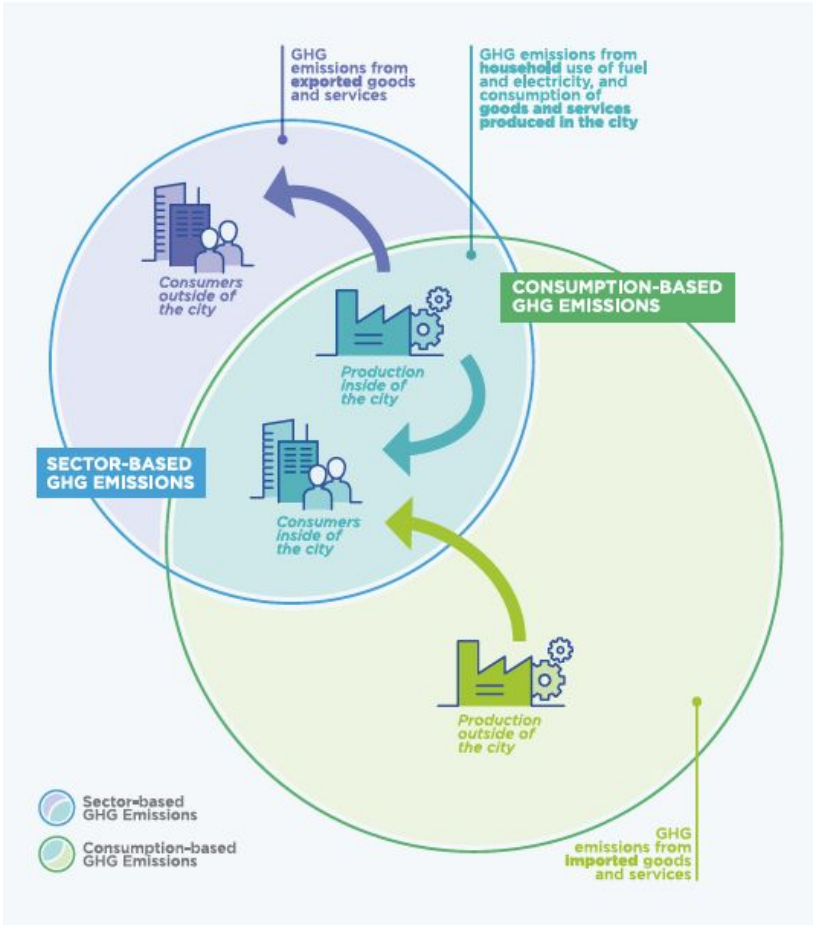
To meet this standard, cities complete **two of three:**

Innovation – *By 2024*, research, develop or pilot (and share) a new, ground-breaking climate initiative

Consumption or demand mitigation strategies - *By 2024*, citywide strategy/ies to reduce emissions from consumption across at least two (2) sectors.

- Dedicated sector strategies such as food, waste or consumption strategies in CAP acceptable
- Consumption-based GHG emissions inventory encouraged, not required

Consumption GHG Mitigation Progress - *Annually* report on progress of any one specific action to address emissions from consumption (2022-2024)



C40 CITIES

LS4: INNOVATE

City innovates and starts taking inclusive and resilient action to address emissions, beyond the direct control of the city government, such as in sectors associated with goods and services consumed in their city.

LS5: LEAD

City and mayor demonstrate global climate leadership and inspire others to act in support of the Paris Agreement.

Freetown: #FreetownTheTreeTown

This initiative also creates new jobs for women and young people in green sectors, providing eco-friendly alternatives to damaging industries like mining. Tree-tracking initiative through assigning “impact tokens” that can be bought, sold, and traded for carbon offsets, preventing future emissions and further climate damage.

Tamil Nadu Green Climate Company (TNGCCC)

TNGCC is a Special Purpose Vehicle (SPV) created by State govt working in 3 key mission areas: Wetlands, Greening and Climate Change. It has an equity of Rs 5 crore from the state government and can get funding from any source, national and international. A Green Climate Fund (GCF) is being set up which will help mobilise funds from outside agencies, which are also for-profit.

03. Approach to Solid Waste and Inclusive Climate Action

November 2023

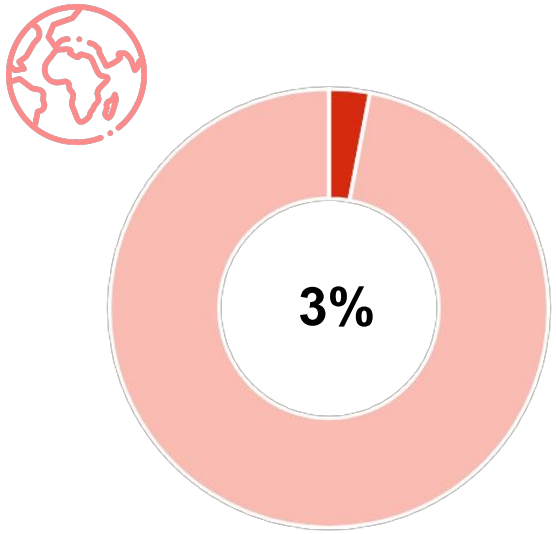
Transforming Organic Waste Management in Mumbai

Dipti Salvi
Senior Manager - Waste and Methane

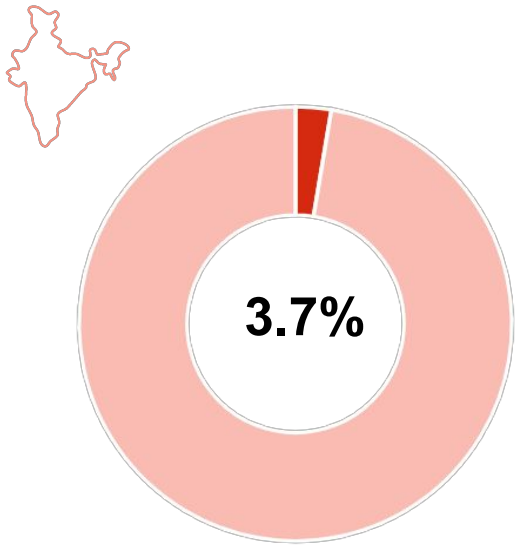
Waste Sector Emissions

Waste is a Major Source of GHG emissions

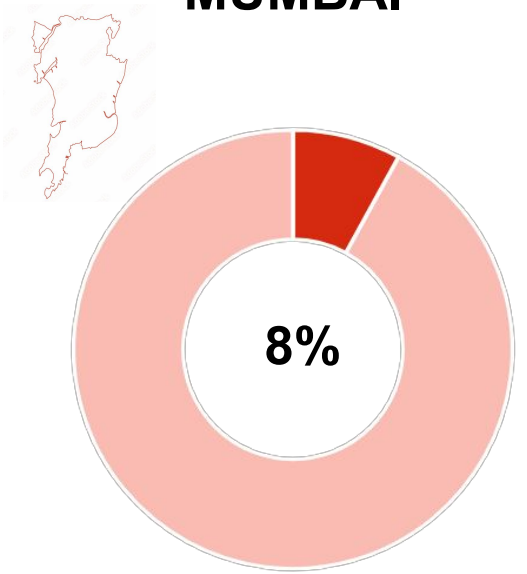
GLOBAL



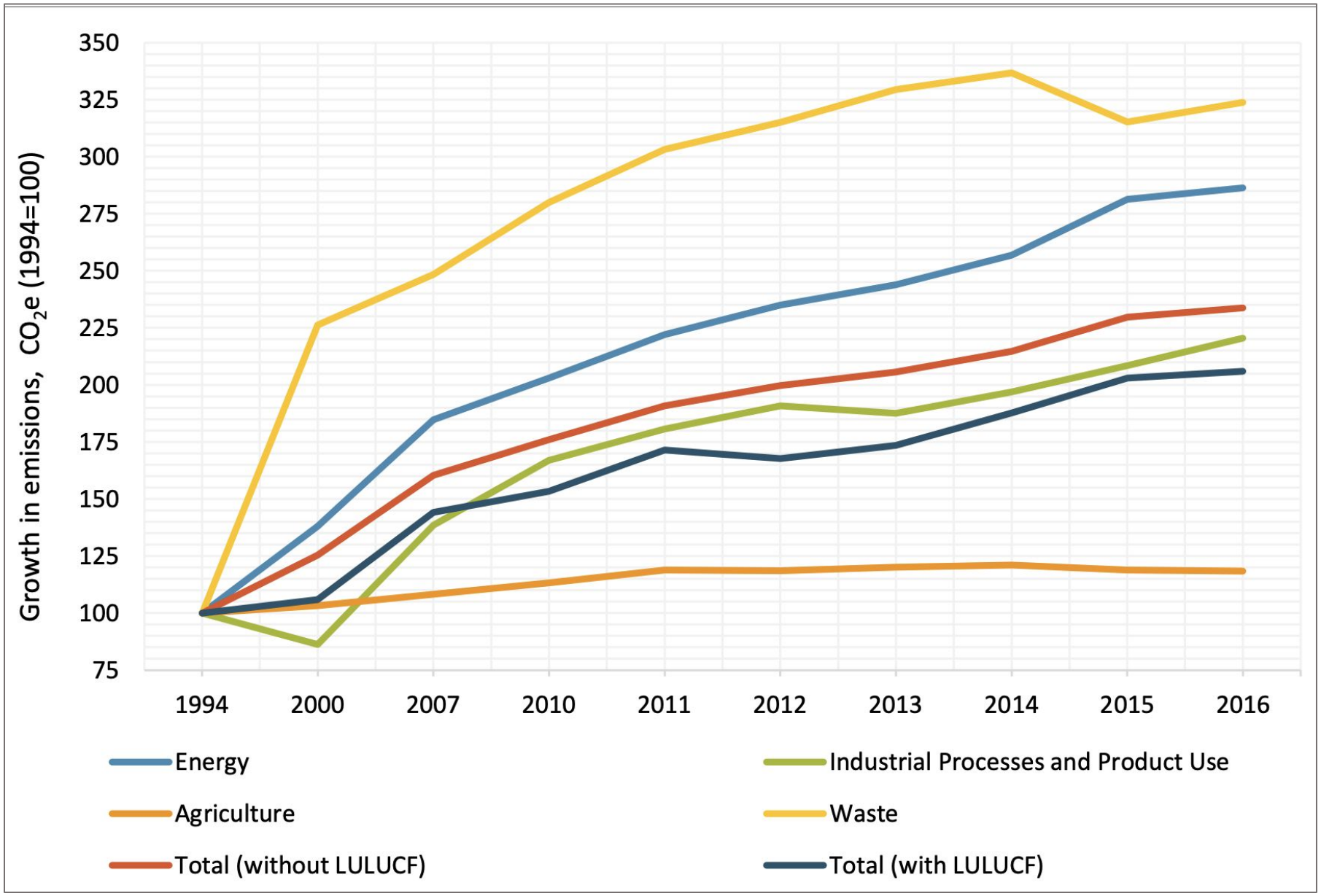
INDIA



MUMBAI



Emissions Rising



Emissions from the waste sector witnessed highest growth of 224% over the period of 1994 to 2016 in India

India's third BUR, MoEFCC, 2021 - to UNFCCC

Waste & Climate

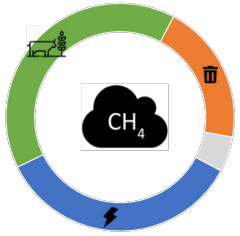
Methane (CH_4) is the **second most important** GHG and is produced in **oil & gas** extraction and conveyance, **agriculture** (rice production), **livestock farming** (enteric fermentation), **waste disposal** (landfills & dumpsites) and **wastewater** treatment.

Methane breaks down relatively quickly in the atmosphere (~10 years), however, it is **extremely powerful** at trapping heat while present.

Methane is also a precursor to **air pollution**, which means that reductions in methane emissions can deliver local benefits in public health, air quality and food production, in addition to reducing the rate of global warming.

It is estimated that **45% of the current temperature increase** is due to man-made methane emissions.

Because reductions in methane emissions deliver benefits very rapidly, reducing methane has been identified as the single, fastest strategy to keep the **Paris Agreement** within reach.



Globally, **20%** of man-made methane emissions come from the **waste sector**, however, this is the sector where city governments have the most powers to directly influence.

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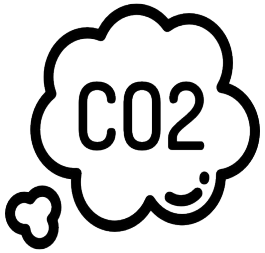
Understanding Emissions

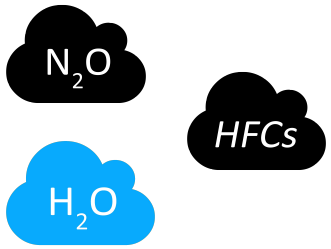


CO_2 is the most important of all the greenhouse gases because it is the most prominent and longer lasting

Produced primarily by the combustion of fossil fuels.

Methane (CH4) is the 2nd most important GHG

Produced in oil & gas extraction, agriculture (rice production), livestock farming (enteric fermentation), **waste disposal (landfills & dumpsites)** and wastewater treatment.



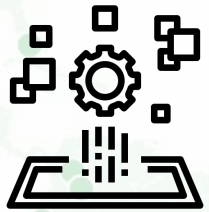
There are other GHGs like Nitrous Oxide (N2O), Hydro Fluoro Carbons (HFC), black carbon and water vapour.

C40 CITIES

Programme Overview

Transforming organic waste management in cities

- Guided by the waste hierarchy, this program is aligned with global good-practice and strategic recommendations made by science, technical, policy and advocacy organizations, prioritizing **closing collection gaps** and developing **alternative treatment infrastructure** for organic waste

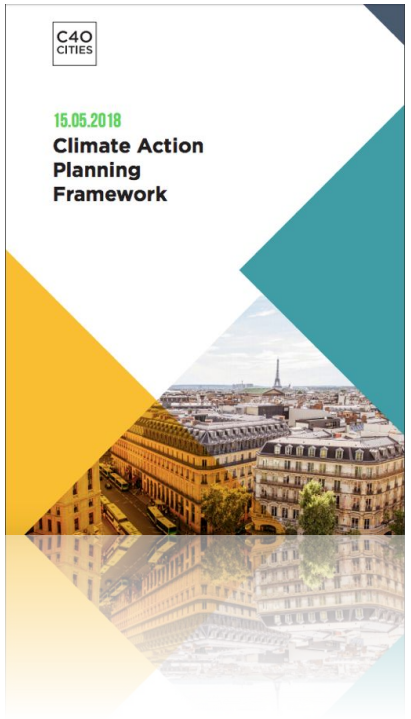


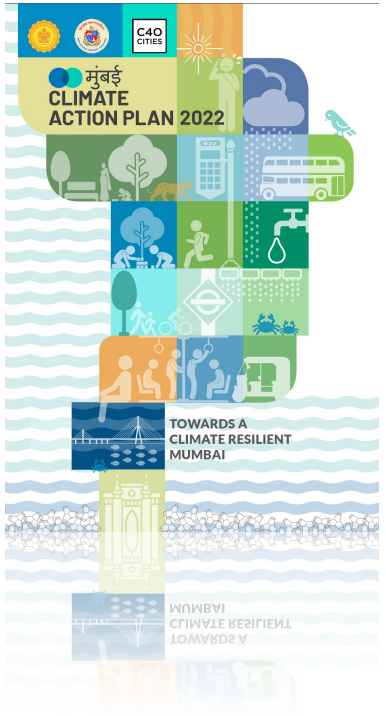
- Building from existing political commitment, and a combination of **on-the-ground** technical assistance, data gathering, capacity building, project development support and peer-to-peer sharing, to accelerate the delivery of the **C40 Pathway Towards Zero Waste**.

- Providing cities with essential tools and data to :
    - **improve** data availability
    - **strengthen** project identification & preparation,
    - **enhance** waste management operations
    - **divert** food waste from disposal to **avoid and reduce** methane emissions.

C40 CITIES

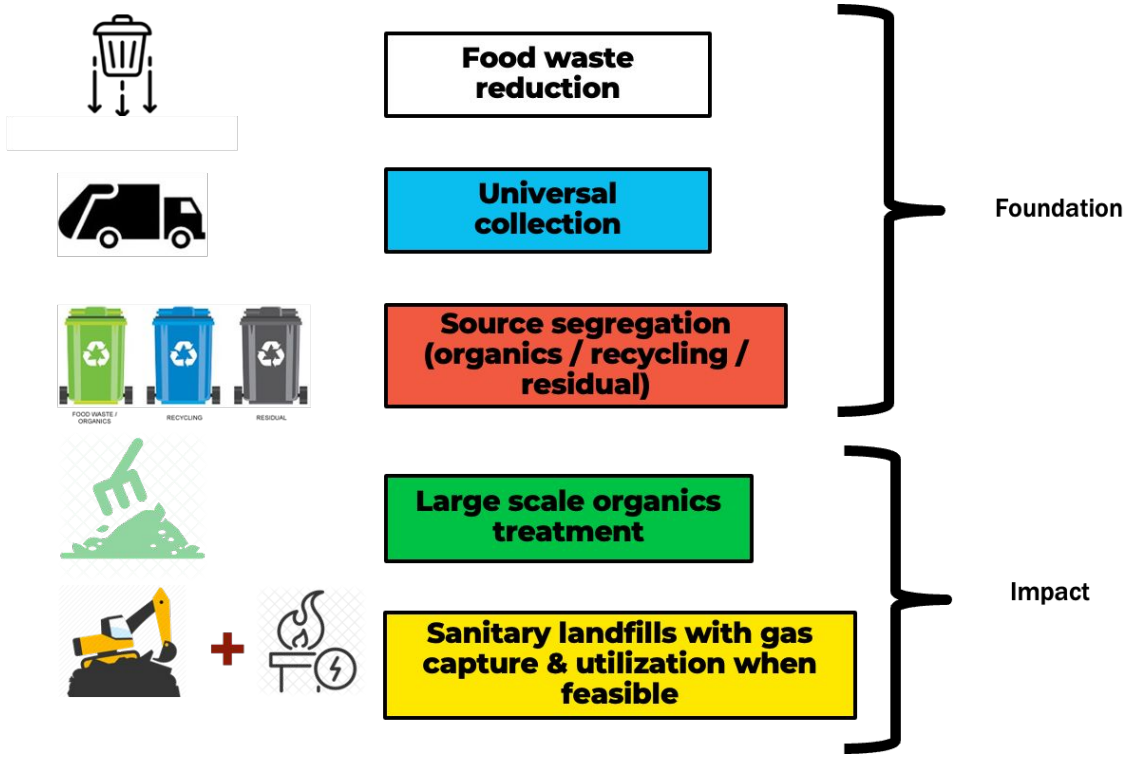
Programme Foundation





Programme Objectives

Improving organic waste management in cities



Data baseline	Budget analysis	Universal collection	Organics procurement strategy	Decentralized treatment & community engagement	Large scale treatment infrastructure	Dumpsite closure / retrofit	Engineered sanitary landfill planning & commissioning	Landfill gas capture improvement

Programme Objectives

The programme has been designed to accelerate actions and projects that **improve organic waste management** in supported cities by taking a strategic and targeted approach through**:**

Improving data availability

(composition, sources, mass flow, hot-spots, gaps)

Local conditions assessment

(feedstock availability, budget, siting, policy, powers, finance analysis)

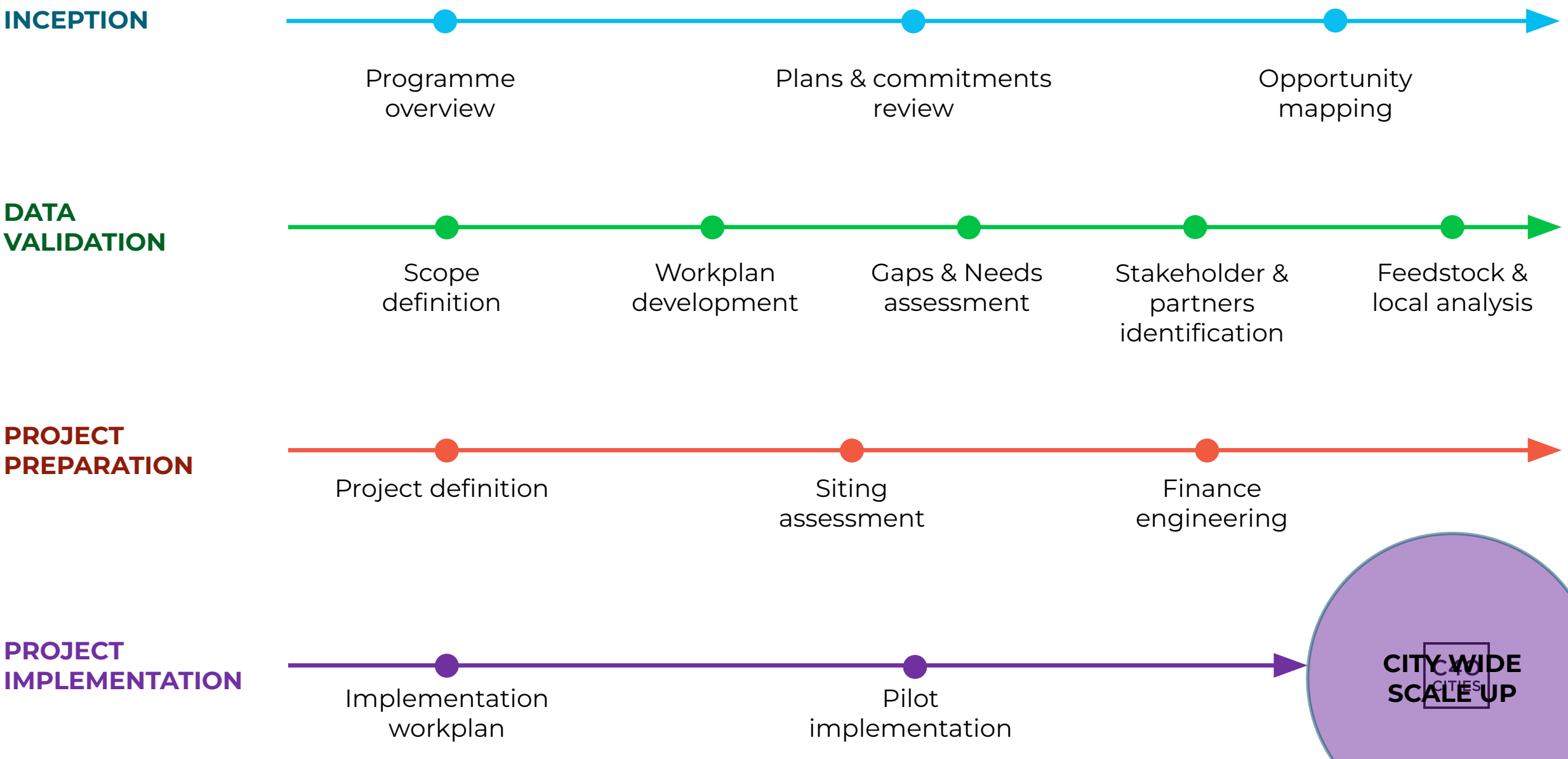
Opportunity mapping & action planning

(existing plans & commitments, opportunities, challenges, stakeholders)

Project preparation and due diligence

(site assessment, feedstock sourcing, finance engineering, pilot implementation)

Programme Objectives



Programme Indicators

Cleaner	Healthier	Resilient	Inclusive
Universal collection, Safe disposal, Recycling	Flooding resilience, Organics recovery, Safe disposal	Universal collection, Flooding, Organics recovery	Segregate collection, informal sector inclusion, Recycling

The **C40 Pathway Towards Zero Waste** is a city-level strategy that supports **Global South** cities to improve waste management practices and reduce waste and GHG emissions.

Cities that sign up for the pathway commit to a 2030 target of:

- providing timely city-wide **waste collection** services;
- **treating** at least 30% of organic waste;
- and **reducing** waste disposal emissions by at least 30%.

Accra . Amman . Dhaka . Buenos Aires . Curitiba . Dar es Salaam . Durban . Ekurhuleni . Freetown . Nairobi . Quito . Rio de Janeiro . Tshwane

C40 CITIES

Mumbai Climate Action Plan - Key sectors

1	**Energy and Building**	• Decarbonizing electricity generation mix, Transition to clean fuels, • Low carbon buildings, Passive design strategies
2	**Integrated Mobility**	• Improve public transport • Access to NMT • 100% zero emission vehicles
3	**Sustainable Waste Management**	• Reducing landfilled waste • Decentralized waste management • Scientific mgt of landfills
4	**Urban Greening and Biodiversity**	• Increase vegetation and permeability • Reduce urban heat island effect • Equitable access, Restore and enhance biodiversity
5	**Air Quality**	• Curb the pollution • Increase monitoring • Community health resilience
6	**Urban Flooding and Water Resource Mng.**	• Build flood resilient systems • Water conservation and efficiency • Reducing pollution • Disaster risk reduction

Priority Action Tracks

Reduce landfill waste

- At source reduction and reuse is the most preferred way of managing waste through waste minimization, sustainable use/multi use of products and awareness, thereby reducing overall emissions.

Decentralized waste management

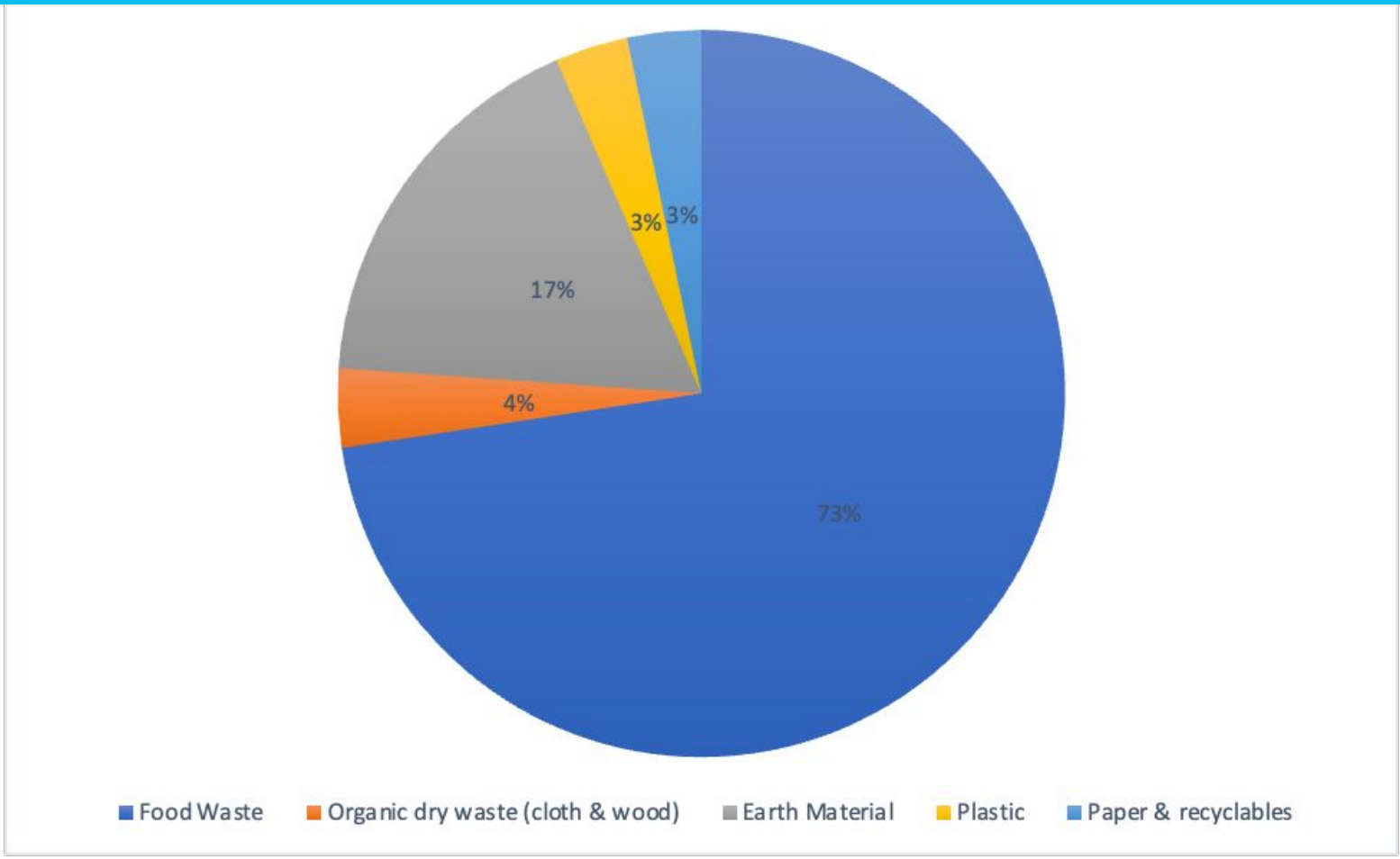
- Setting up decentralized infrastructure helps reduce costs and emissions related to collection and transportation and facilitates the overall uptake of recycling and composting.

Remediation & Scientific management of landfills

- Landfilling is the least preferred mode of managing solid waste as it generates the least amount of value. Remediation of legacy sites and scientific management of existing landfills is crucial to reduce GHG emissions, pollution and health risks due to unscientific SWM

C40 CITIES

Solid Waste Management in Mumbai



- Segregation at source is partly achieved within the entire city.
- Enforcement on identified bulk waste generators on waste segregation at source.
- Property tax relief of 5-10% is provided to residential societies that segregate and compost waste.

C40 CITIES

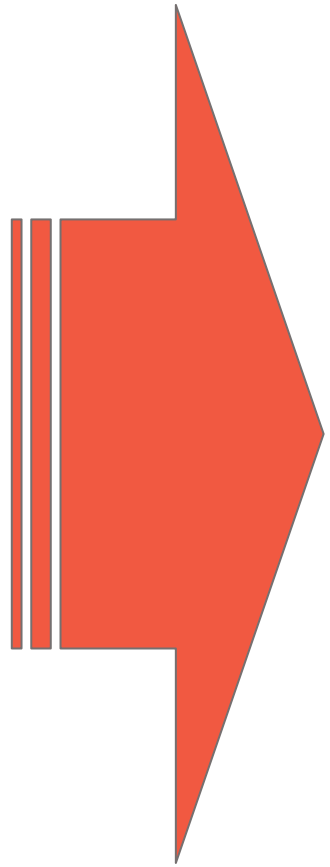
Solid Waste Management sector linkage with MCAP:

As per the Mumbai Climate Action Plan, the targets set for the SWM sector shall be focused under the “Pathway towards Zero Waste Program”,

Reducing Landfill Waste
- Plan for Biomining of Deonar Landfill
- Installation of 600 TPD Waste to Energy Project
- Proposed Phase II of Waste to Energy Project
- Reducing the waste going to landfill

Decentralized Waste Management
- Focus on decentralized treatment facilities for organic waste (BMC owned or privately owned)
- 1000 TPD organic waste to be provided to MGL for treatment

Scientific Management of Landfill
- Existing Bioreactor landfill at Kanjurmarg
- Proposed scientific landfill site at Karawale Village near Taloja



Support to Methane reduction set up to reach overall goal of MCAP under SWM Sector

Workshop outcomes

Areas of support to strengthen BMC's SWM system

- IEC for source segregation
- Storm water drains clogged
- Sharing of best practices
- Knowledge support on technologies

Next Steps:

C40 in process of proposing priority actions to BMC based on which actual implementation work plan will be derived to enhance the efficiency of SWM system.

C40 CITIES

For bold climate action to be implemented it has to be supported, have wide consensus and be socially accepted; and for this to happen it has to be inclusive and equitable!

Phase 1 - 9 cities

Phase 2 - 12 cities

ACCRA

Strengthening informal sector collaboration to promote ownership of climate action and enhance access to wider benefits

BARCELONA

Reducing energy poverty and improving the resilience of frontline communities

WARSAW

Tackling air quality and energy poverty for low income groups and coalition building of key stakeholders for city climate action

SOUTH AFRICA (5 Cities)

Capacity building and engagement on Just Transition in Durban, Cape Town, Johannesburg, Ekurhuleni, Tshwane.

LA

Just transition in the energy sector with a focus on **worker, union and civil society engagement**, and development of green jobs pathways

AFRICA PILOT

Enhancing City-Informal Sector Engagement for Resilience: Expanding city-informal sector engagement through regional stakeholder engagement, campaigns, advocacy, policy support, and knowledge sharing.

EUROPE PILOT
MILAN, WARSAW, BARCELONA, PARIS & LISBON

Advancing key city actions that tackle energy poverty in line with C40 Energy Crisis Plan.
Barcelona: Strengthening the Climate Shelter Network and improving thermal comfort in elder care homes
Warsaw: Pilot energy audits in low-income and multi-family social housing buildings
Milan: Developing the local Strategy Against Energy Poverty, and pilot training for social workers
Paris: Setting up the local Energy Poverty Observatory
Lisbon: Supporting the Solar Social Tariff policy design

Continue Integrating City Perspectives in National Climate Policies - National policies now reflect and include city perspectives, enhancing inclusion for city residents and highlighting the important role of cities in climate action.

BANGALORE

Upskilling of waste workers - youth and women- to deliver better waste services in the city, and engage marginalised communities

Inclusive Climate Action Bengaluru Pilot

Pilot project: BBMP for Bengaluru had identified inclusion issues relating to upskilling workers in the solid waste management (SWM) sector.

Goal: To support targeted engagement by the city to advance equity components and inclusion opportunities within solid waste management that will deliver on the priorities of the CAP and overcome socio-economic barriers.

Project period: February 2022 - May 2024

Key outcomes:

- Inclusion of junior workers to implement and waste segregation in bulk waste generators
- Inclusion of junior workers in Bengaluru's waste management policies and climate initiatives.
- Improved skills, capacities and knowledge of BBMP and other teams to deliver inclusive climate action that benefits frontline communities.

Baseline Assessment (June - November 2023)

A comprehensive study that outlines the **challenges and opportunities** of participatory approaches to Solid Waste Management of Bulk Waste Generators (BWGs) in Bengaluru (Bommanahalli Zone), **offering concrete recommendations** to **improve the participatory approach** for in-situ waste management through **key actions such as training activities**.

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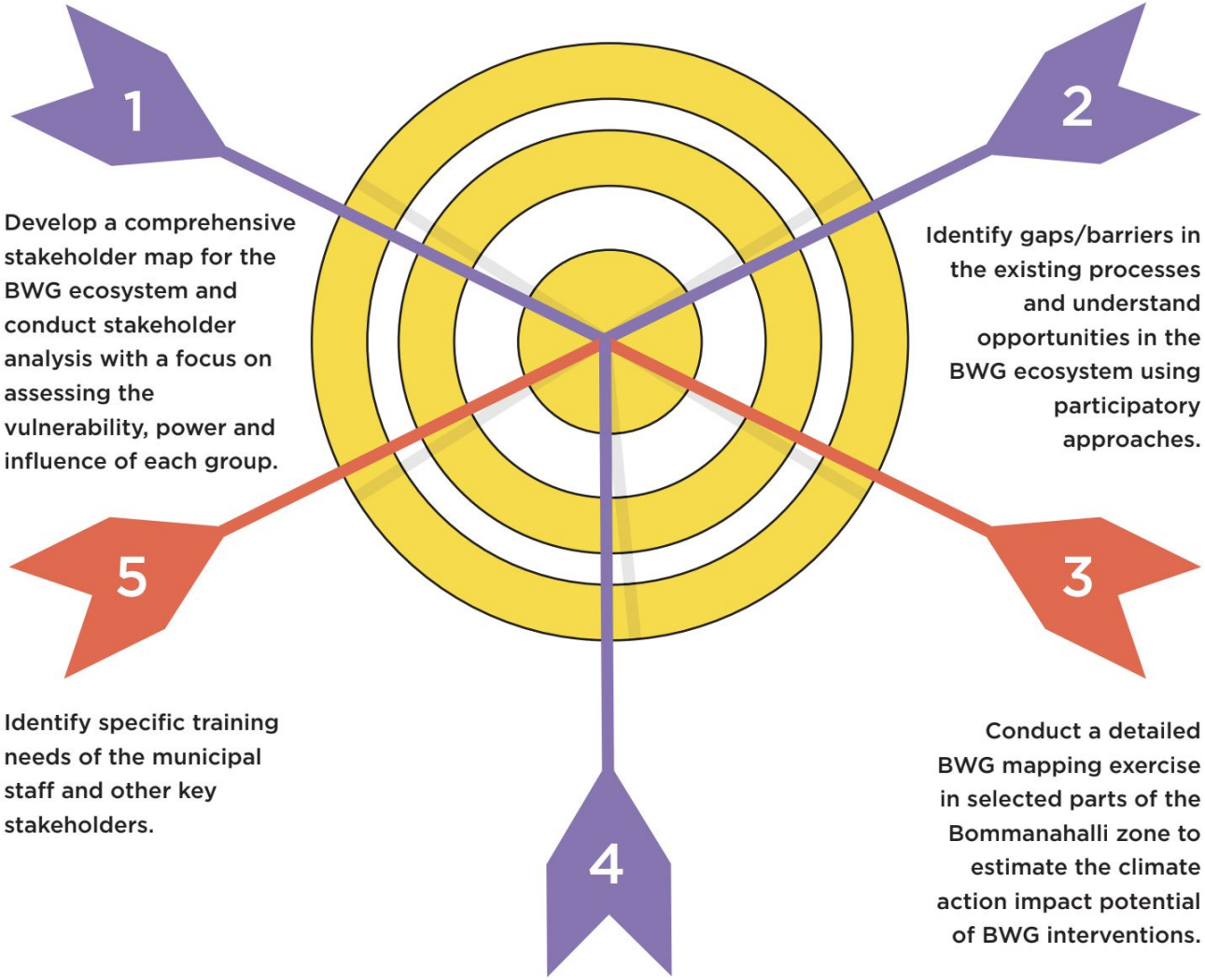
Baseline study Objectives



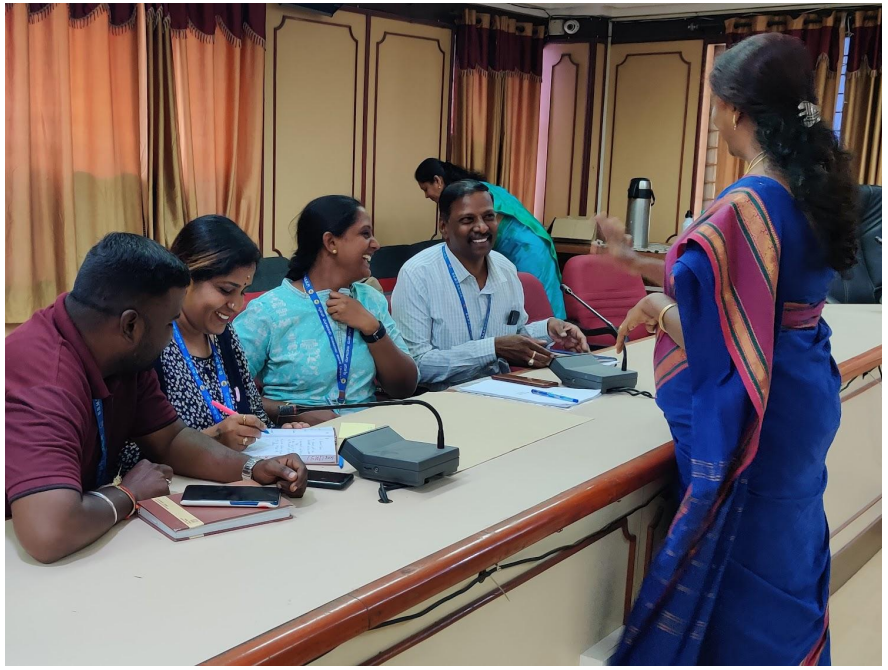
1. Develop a comprehensive stakeholder map for the BWG ecosystem and conduct stakeholder analysis with a focus on assessing the vulnerability, power and influence of each group.

2. Identify gaps/barriers in the existing processes and understand opportunities in the BWG ecosystem using participatory approaches.

3. Conduct a detailed BWG mapping exercise in selected parts of the Bommanahalli zone to estimate the climate action impact potential of BWG interventions.

4. Provide recommendations to strengthen the inclusion of waste sector workers in BWG ecosystem.

5. Identify specific training needs of the municipal staff and other key stakeholders.



A brief timeline and overview of the assessment activities

Baseline development and identification of equity and equitable opportunities	Stakeholder workshops and interviews with over 120 individuals including city officials and city staff	Mapping of 183 bulk waste generators across five wards	Preparation and submission of a baseline assessment report
Desk-based research *(June - July 2023)*	**Stakeholder identification, mapping and consultations** *(July - Sept 2023)*	**Geospatial mapping** *(July - Aug 2023)*	**Key findings and recommendations** *(Oct - ongoing)*

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BWG mapping in Bommanahalli zone

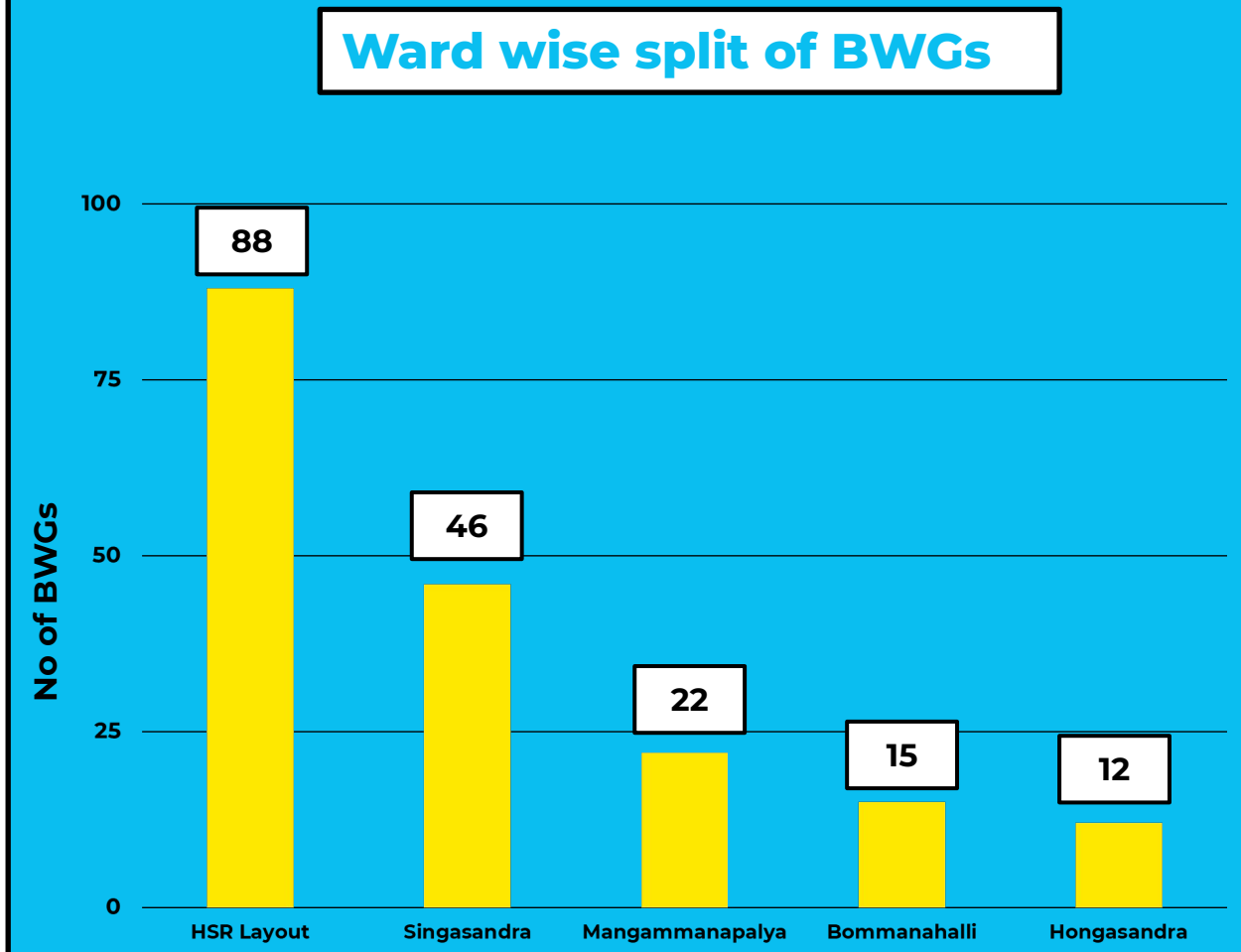
List of wards mapped:

- HSR Layout (Ward 174)
- Bommanahalli (Ward 175)
- Hongasandra (Ward 189)
- Mangammanapalya (Ward 190)
- Singasandra (Ward 191)

Total BWGs in five wards: 183

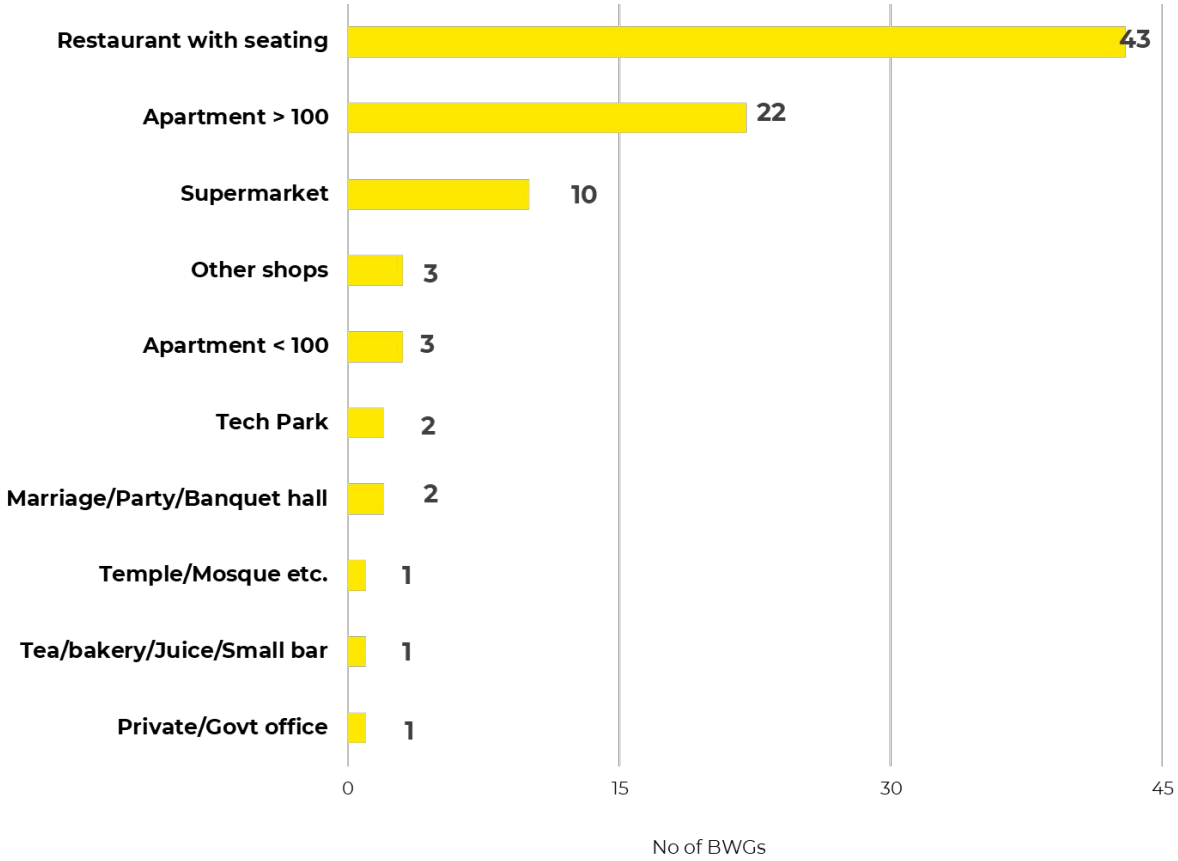
Total waste generated by 183 BWGs:

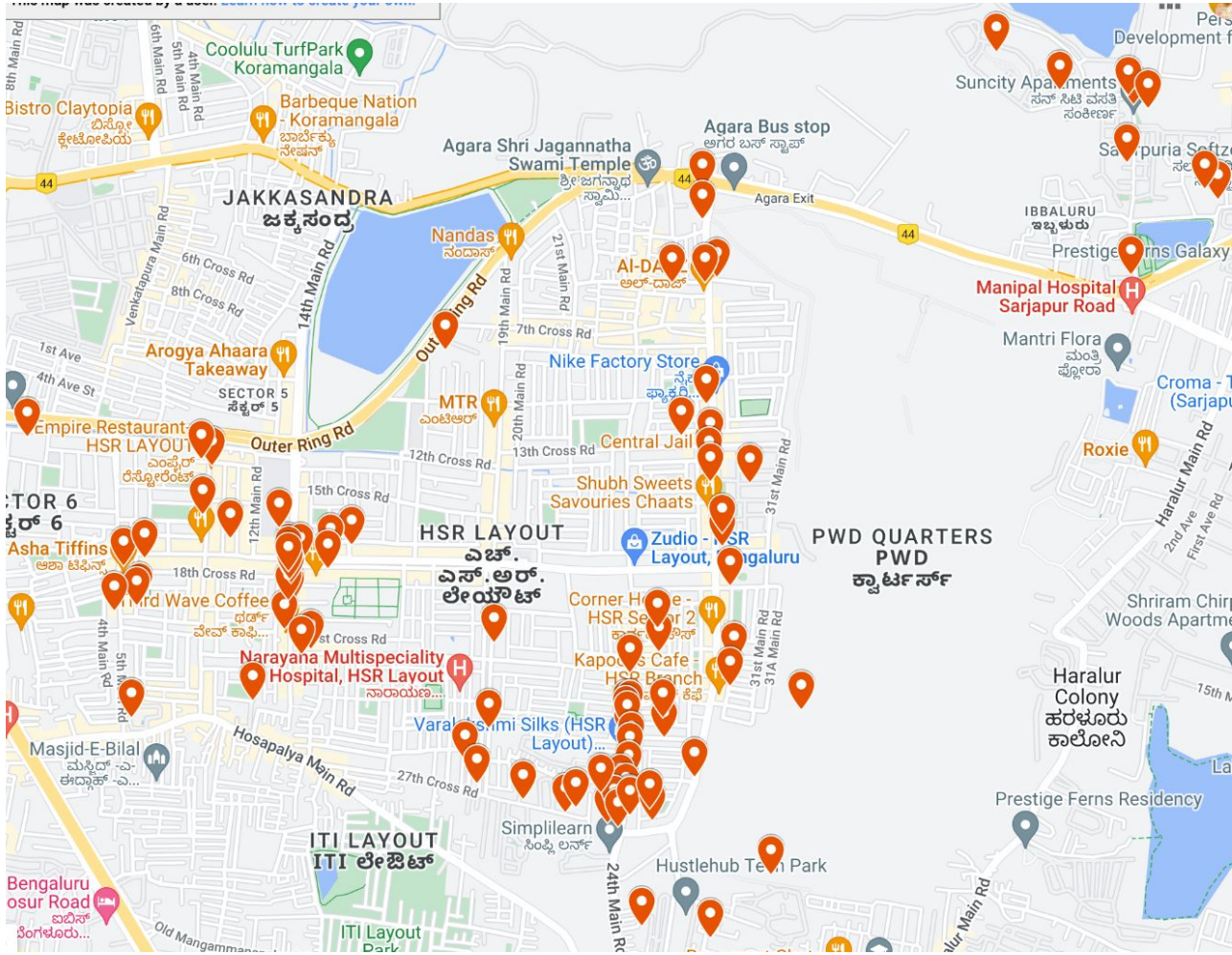
41.5 MT/day



BWG mapping in HSR Layout

Total number of BWGs: 88





Link to access the map: [BWG Mapping_HSR]

Link to access the data table: [BWG data table_HSR]

Stakeholder identification and analysis

WASTE GENERATORS

- RESIDENTIAL
- COMMERCIAL
- INSTITUTIONAL

WASTE COLLECTORS AND PROCESSORS

- WARD CONTRACTOR
- SERVICE PROVIDER/ AUTHORISED WASTE PROCESSOR - *OFF-SITE*
- SERVICE PROVIDER /PRODUCT SELLER - *IN SITU*
- WASTE COLLECTION STAFF & ON-SITE HOUSEKEEPING STAFF
- PIGGERIES

1 Zone

12 Stakeholder Groups

REGULATORS

- BBMP - SENIOR OFFICIALS
- BBMP - JHI
- ELECTED REPRESENTATIVES

OTHER INTEREST GROUPS

- CIVIL SOCIETY ORGANISATIONS
- BANGALORE APARTMENT FEDERATION

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Stakeholder workshop

Workshop with residential housekeeping staff

17/08/2023
11 participants *(10 women and 1 man)*
Critical staff to implement in situ waste management, manage door-to-door waste collection

"Our work is dignified because the residents segregate their waste properly and the RWA members support us whenever there is a problem in the waste management system."

- Housekeeping staff at a BWG

Workshop with institutional housekeeping staff

19/08/2023
41 participants (20 women and 21 men)

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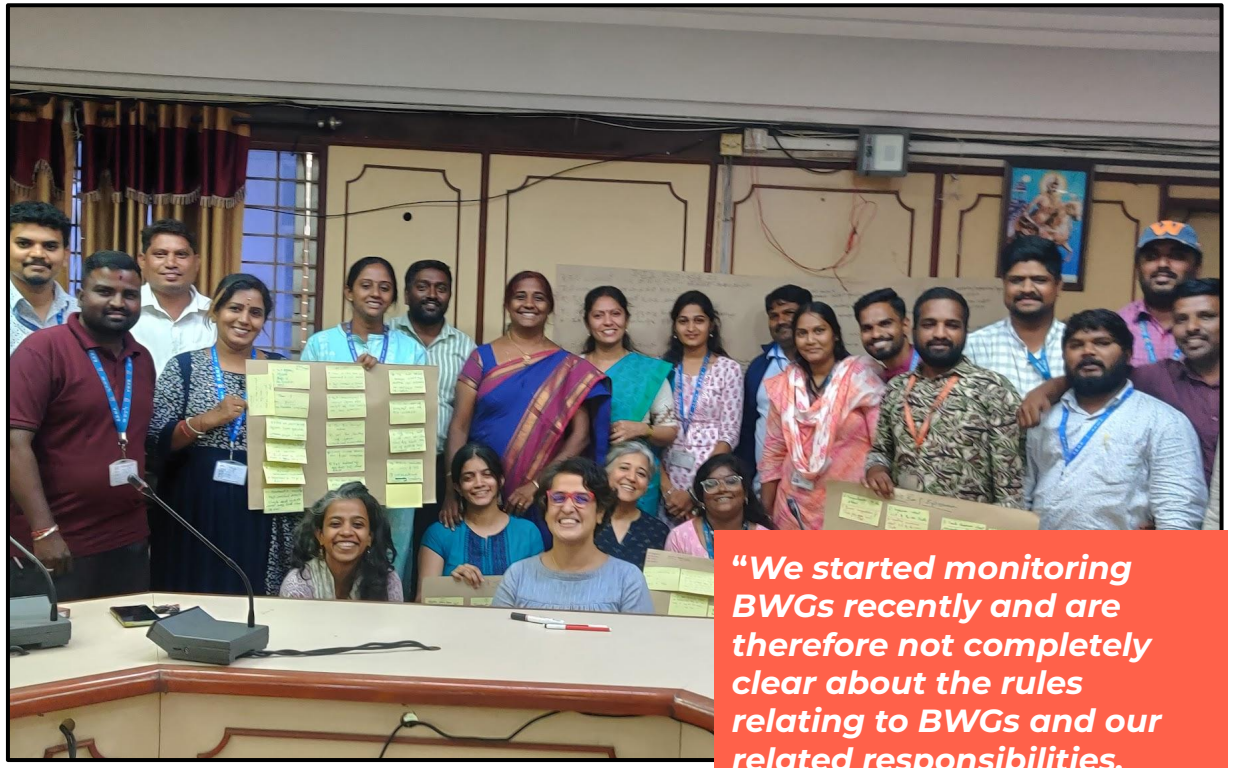
Stakeholder workshop



Workshop with city JHIs

23/08/2023
21 participants (16 male and 5 female)
Junior city staff, youth, and second most vulnerable stakeholder group (contractual city staff)

"We started monitoring BWGs recently and are therefore not completely clear about the rules relating to BWGs and our related responsibilities. Having clarity about the regulations and our responsibilities would go a long way in improving the confidence with which we can approach the BWGs and the effectiveness of our monitoring."

- JHI, Bommanahalli

Workshop with waste collection staff

30/08/2023
23 participants
Frontline community and most vulnerable stakeholder group (non-city staff, works on contract with individual contractors)

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Findings

BBMP

Mapping of BWGs at scale

Training and capacity building needs

Need for reporting and monitoring formats

Replicating existing best practices

Limited knowledge of impact of SWM on climate change

JHI

Importance of defining roles & powers

Training and capacity building needs

Improved administrative & political support

Requirement for IEC campaign design & implementation

Relevance of recognition & job security

Limited knowledge of impact of SWM on climate change

Waste Collection Staff

Importance of awareness & IEC

Training and capacity building needs

Development of market for compost

Improved financial viability of in-situ biodegradable waste management

Need for incentives and rebates

Civil Society Groups

Necessity of regular funding support

Increased administrative & political support

Service Providers

Enhanced collaboration with BBMP

Training and capacity building needs

Necessity of monitoring mechanisms

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What's next?

Strengthening capacities of Junior Health Workers

Improving monitoring system at BBMP

Advocating for social inclusion

Enhancing capacities at BWG

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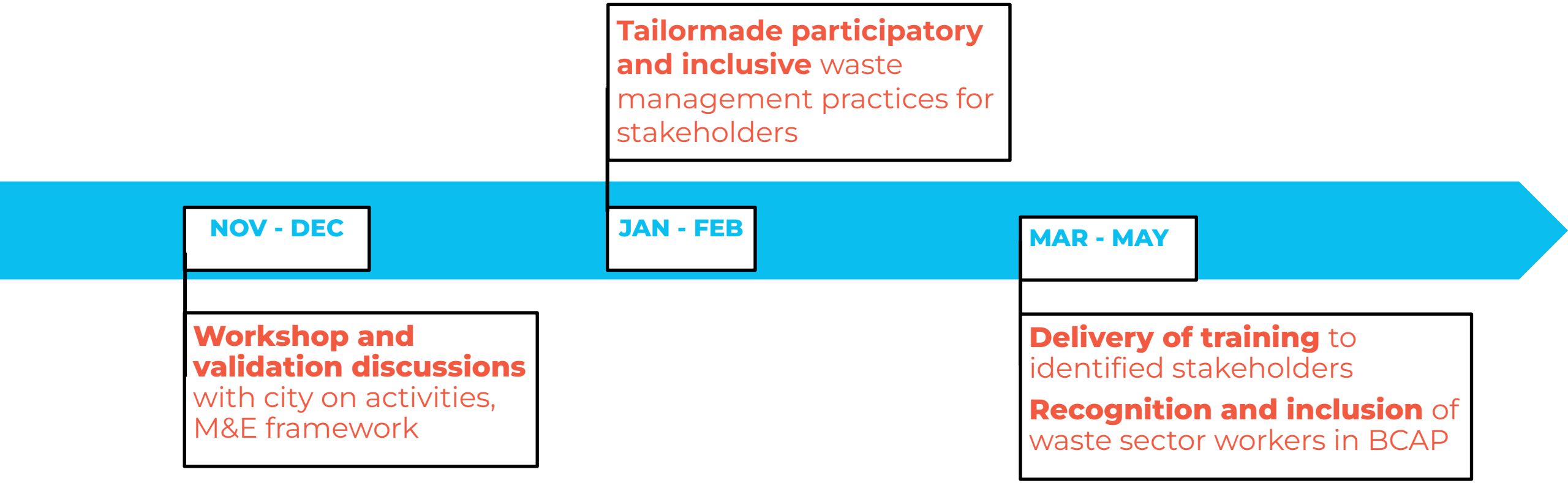
Next Steps


NOV - DEC
Workshop and validation discussions with city on activities, M&E framework
JAN - FEB
Tailormade participatory and inclusive waste management practices for stakeholders
MAR - MAY
Delivery of training to identified stakeholders
Recognition and inclusion of waste sector workers in BCAP

04. Approach to Freight Electrification in India

Brief Overview of Freight Sector in India

5% of GDP
~22M Jobs[1]

Vehicle Distribution:[2]
76% of Heavy Duty Trucks,
21% of Medium Trucks,
3% by Light Comm. Veh.

5X Growth by 2050[3]

Sector saw **4X Growth since 2000**[3]

~60% of all goods are moved by road, but account for ~95% of emissions from freight sector[4]

While goods moved by **Rail** declined **by 54%, by road it increased by 48%** since 1950s[3]

~4% of all vehicles, but source of >40% emissions from road transport[4]

220 **M tonnes of CO2, 2.4M Tonnes of NOX, 132 Kilo Tonnes of PM** emissions in 2020[2]

Sources:
1 - https://www.niti.gov.in/sites/default/files/2021-06/FreightReportNationalLevel.pdf,
2 - https://www.niti.gov.in/sites/default/files/2022-09/ZETReport09092022.pdf,
3 - https://e-amrit.niti.gov.in/assets/admin/dist/img/new-fronend-img/report-pdf/Freight_report.pdf
4 - https://www.iea.org/reports/india-energy-outlook-2021

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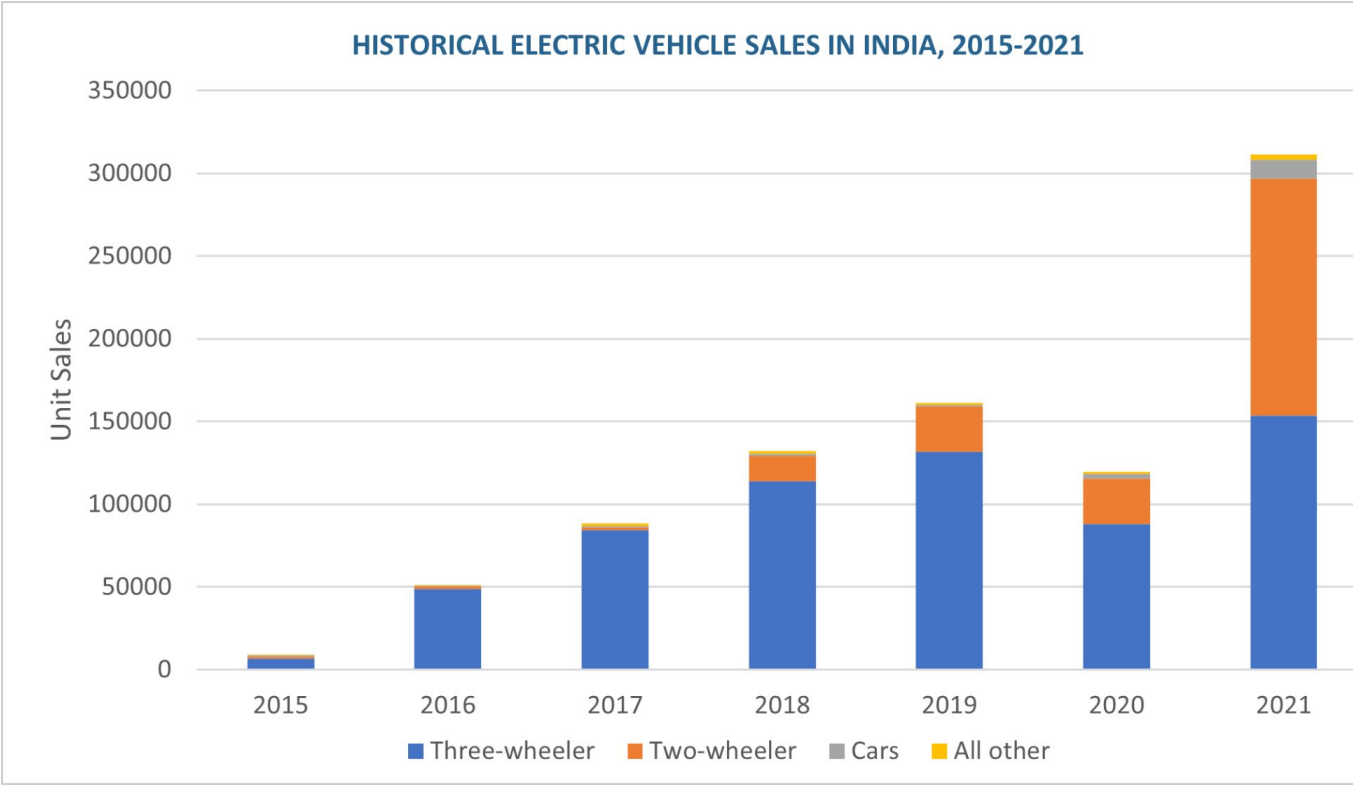
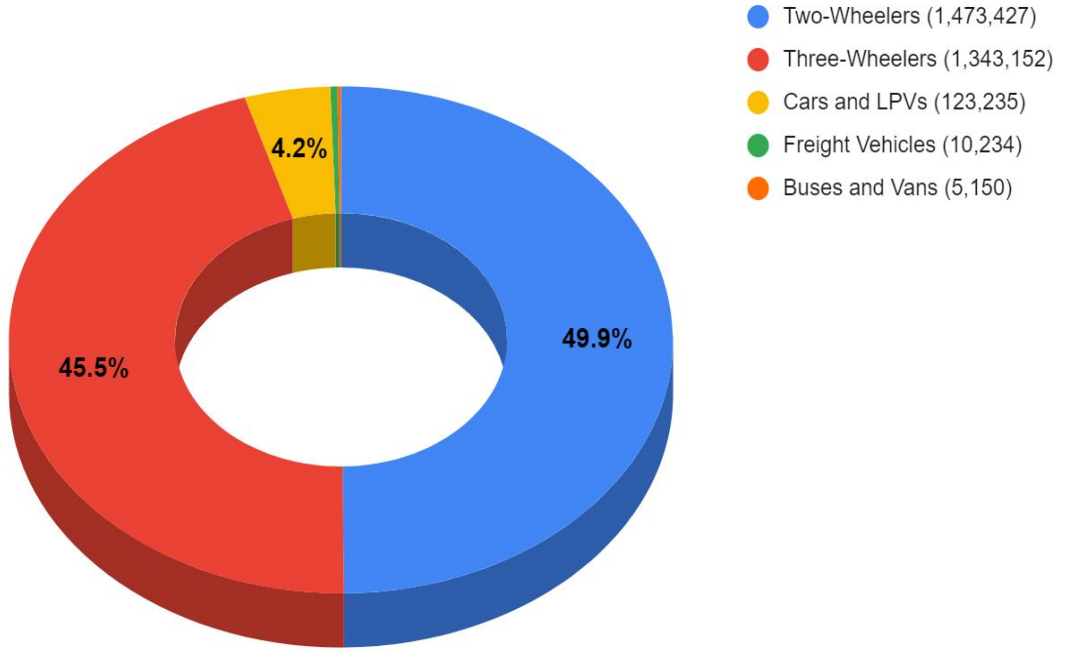
Electric Vehicle Sales Trend & Distribution

EV Sales Trend in India (2015-2021)



Source: JMK Research

Electric Vehicles in India - Distribution



Source: Vahan Dashboard - Data for (2014-2022)

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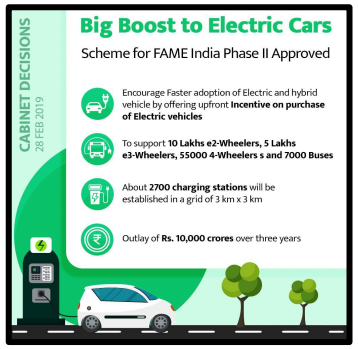
National, State and City Level Initiatives



01

02

03

GoI's Schemes to Decarbonise Transport Sector

FAME Scheme for Passenger Vehicles

PM e-Bus Sewa for Public Transport

Freight Sector?

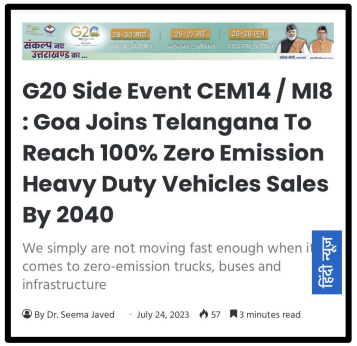
Opportunities at the City-State-National levels

Mumbai targets for 100% Electrification of Light Duty Freight Vehicles by 2050

04

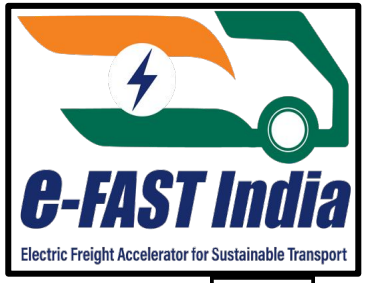
State Governments' Commitments for Freight Electrification

05



National Platform for enabling Government-Private Sector-Think Tanks Collaborations

06



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Laneshift's Objectives in India

Electric truck market transformation & EV Highway on track for full deployment by 2030

1. Address concerns around vehicle electrification **("myth-busting")**
2. Test and prove the feasibility of **electric highways** in India
3. Galvanise **political action across government levels** (City-State-National)
4. Influence both the **demand and supply of electric trucks**
5. **Generate investment** in the sector
6. Ensure that an **inclusive climate action approach** is at the heart of this transition

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Key Barriers - MDV & HDV Electric Freight Vehicles

1

Economic & Financial Barrier

- High Initial Costs (2-3 times the ICE Vehicle)
- Resale Risk & Secondary Market Uncertainty
- Limited Availability of Financing Options

2

Infrastructure Barrier

- Lack of fast charging stations.
- Inadequate Energy Supply
- Lack of interoperability due to inconsistent charging standards & connectors.

3

Technological & Performance Barrier

- Technology uncertainty
- Lack of truck models & viability of use cases
- Limited Range & Battery Degradation
- Payload Capacity Limitation (Battery Weight)

4

Regulatory & Policy Barriers

- Limited Coordination at State & Central Level
- Inconsistent Incentives & Subsidies
- Variable Taxation & Import Duties (Statewise)
- Complex permitting & Licensing Procedures

5

Operational Barrier

- Inadequate Skilled Workforce
- Limited Availability of spare parts
- Operational and Maintenance Risks

6

Awareness & Acceptance Barrier

- Misconceptions & Limited Knowledge about electric trucks - capability, accessibility & cost
- Psychological Barrier (Risk associated with EV trucks due to lack of proven track record)

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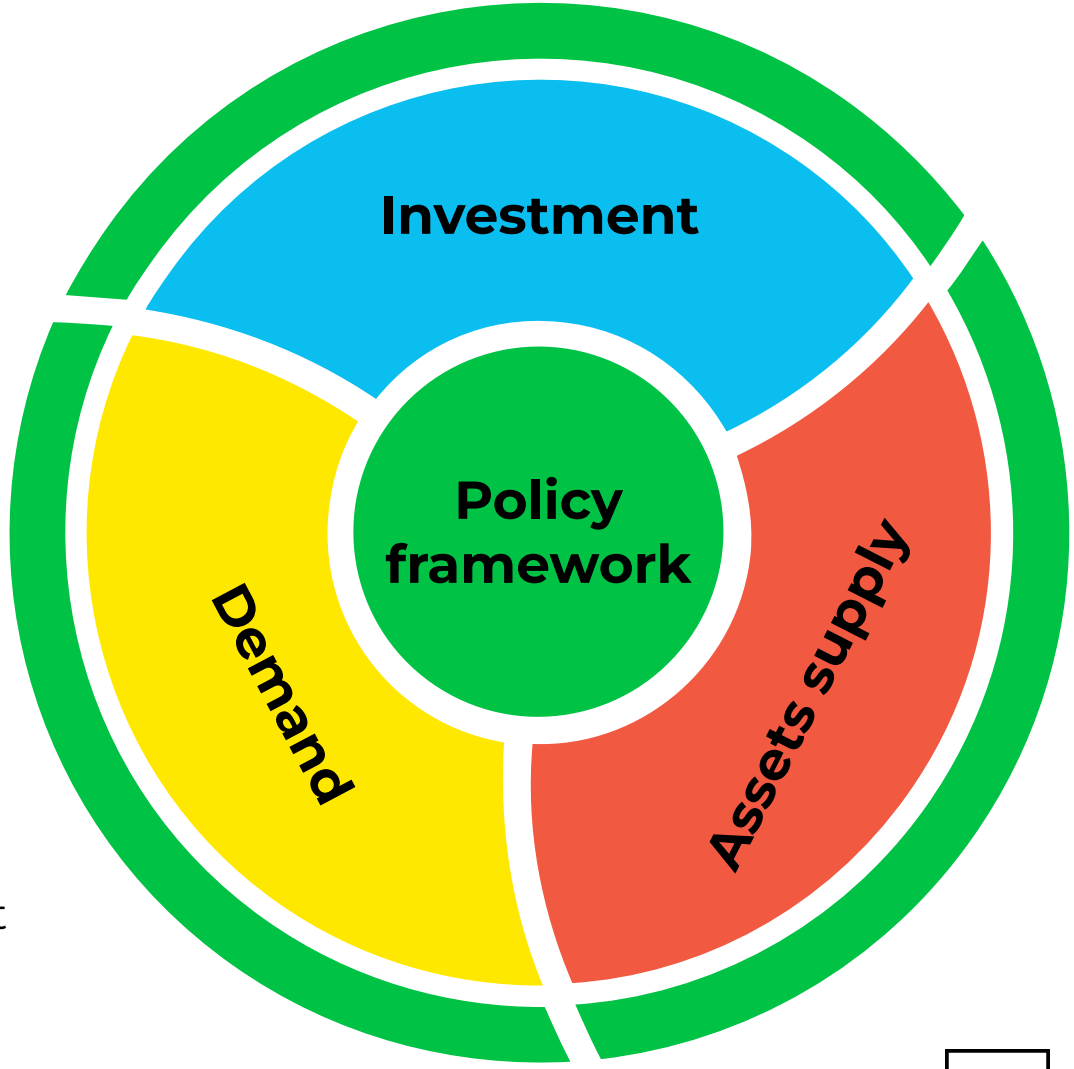
Approach

Policy framework: Policy and business environment to support the transition to electric freight vehicles and the provision of charging infrastructure. Credible city and government commitments encourage investor activity and player entry.

Demand: A relevant pipeline of bankable e-freight projects from cities, operators or goods companies

Assets supply: Development of the supply chain to provide a competitive supply manufacturing market with various provider options for e-vehicles, chargers and batteries

Investment: Diverse funding ecosystem and sufficient flows of concessional growth and working capital to meet investee needs



Laneshift Programme: Goals & Outcomes

EV Highway

Goal: Prove electric highways feasibility in India

Expected Outcome: Successful pilot project that ignites nationwide electric highway initiatives.

Working Groups

Goal: Accelerate the freight electrification & engage stakeholders effectively.

Expected Outcome: Boost electric freight and create electrification friendly conditions

Freight Academy

Goal: Galvanise political action & Influence demand and supply of electric trucks

Expected Outcome: Mobilize cities and secure support from national, state, and private sector stakeholders

City Engagement

Goal: Galvanize political action and rectification of EV misconception

Expected Outcome: Leverage policy tools to boost zero-emission freight adoption.

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EV Highways - Key Tasks

Task 1 – Corridor Identification

- Quantitative analysis of traffic density through toll data
- Qualitative assessment of industrial activities and policy landscape
- Grid capacity assessment

Task 2 – Infrastructure estimation

- Expected number of Zero Emission Trucks (ZETs) on the corridor through 2030
- Number of required chargers with geographical placement
- Total investment required

Task 3 – Corridor specific impact analysis

- Expected number of Zero Emission Trucks (ZETs) on the corridor through 2030
- CO_2 emissions avoided
- Fuel cost savings

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Technical Assistance Studies

Technology & Economic Analysis	• Estimate e-freight demand based on market trends. • Analyze battery tech, charging innovations, and risks. • Develop a techno-economic model for medium/heavy vehicles.
EV Readiness: Mumbai, Pune, Bengaluru, Delhi	• Identify freight vehicles for zero emission transition. • Assess infrastructure for electrification in cities. • Create city policy framework for 100% intra-city freight electrification.
Developing Financial Models for e-freight	• Develop integrated policy with financial and institutional mechanisms for e-Freight adoption in India • Explore fiscal instruments for generating demand for e-freight
Policy Framework	• Identifying Barriers & Enablers for e-Freight in India • Review of regulatory mechanisms and best practices worldwide • Integrated (National/State/City) framework in Indian context

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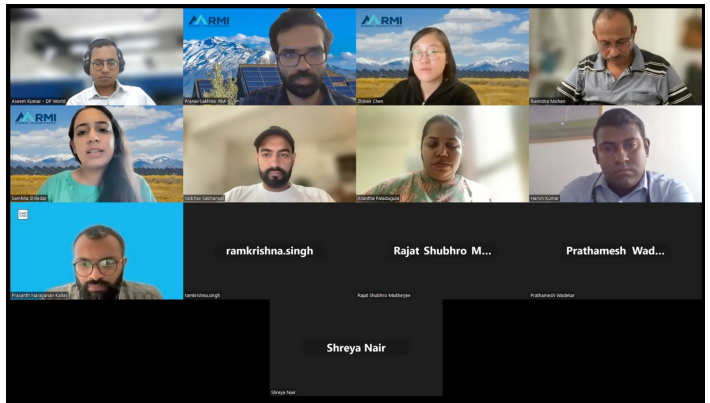
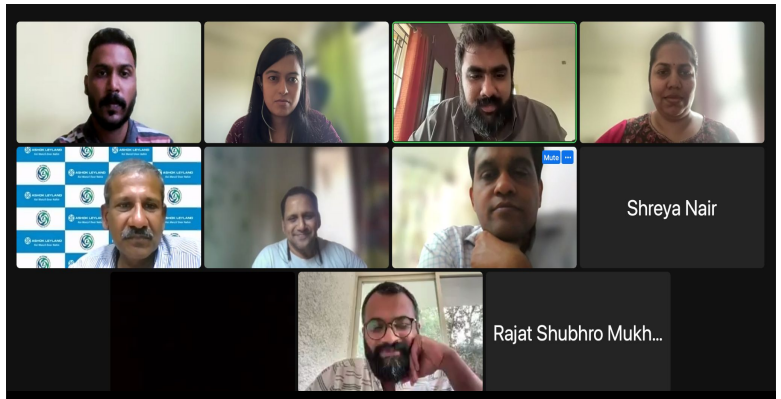
Working Group Convenings & Webinar



Convening WG-2 (19th Oct 2023)



Convening WG-4 (31st Oct 2023)

Webinar 1 - (1st Nov 2023)


Convening WG-5 (2nd Nov 2023)


Convening WG-3 (8th Nov 2023)

Waste & Climate

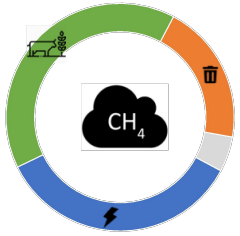
Methane (CH_4) is the **second most important** GHG and is produced in **oil & gas** extraction and conveyance, **agriculture** (rice production), **livestock farming** (enteric fermentation), **waste disposal** (landfills & dumpsites) and **wastewater** treatment.

Methane breaks down relatively quickly in the atmosphere (~10 years), however, it is **extremely powerful** at trapping heat while present.

Methane is also a precursor to **air pollution**, which means that reductions in methane emissions can deliver local benefits in public health, air quality and food production, in addition to reducing the rate of global warming.

It is estimated that **45% of the current temperature increase** is due to man-made methane emissions.

Because reductions in methane emissions deliver benefits very rapidly, reducing methane has been identified as the single, fastest strategy to keep the **Paris Agreement** within reach.



Globally, **20%** of man-made methane emissions come from the **waste sector**, however, this is the sector where city governments have the most powers to directly influence.

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Thank you for joining us!

Details for tomorrow's session are in the chat! Please don't forget to give us feedback.

Comms Partner