Bengaluru CLIMATE ACTION & RESILIENCE PLAN

Bruhat Bengaluru Mahanagara Palike

C40 CITIES

With WRI INDIA as Knowledge Partner

BENGALURU CLIMATE ACTION AND RESILIENCE PLAN (BCAP)

SECTOR-WISE ACTION RECOMMENDATIONS

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BCAP Sector-wise action recommendations

Figure 1 Sectors identified for BCAP action orientation

Source: As identified by BBMP with the technical support of WRI India

The actions recommended are prioritised into *High, Medium* and *Low* based on the following:

Figure 2: Action Prioritisation

High priority	Actions which have greater mitigation and adaptation potential, that need to be carried out immediately.
Medium priority	Actions with moderate mitigation and adaptation potential as compared to other actions
Low priority	Actions that have lower mitigation and adaptation potential as compared to other actions

The following section presents action tracks, goals, strategies, and actions recommended for each of the seven sectors considered under the BCAP.

Actions pertaining to inclusivity and IEC are highlighted below in the sector-wise action recommendations.

Inclusivity
Information, Education and Communication
Inclusivity and IEC

1 Energy and buildings

Sectoral action tracks

No.	Action track
E&B-1	Achieve higher penetration of energy-efficient appliances and clean fuel transition in all major sub-sectors (residential, commercial, institutional, and industrial).
E&B-2	Promoting green and low-carbon buildings with passive and active design strategies.
E&B-3	Increase the proportion of non-fossil fuel sources in the city's grid electricity generation to 68% by 2030 and 89% by 2050.
E&B-4	Implement effective communication methods for nudging behavioural changes by adopting behavioural science principles through IEC programmes.
E&B-5	Develop a programme for affordable clean cooking fuel transition.

Track-wise actions

Priority	S.No	Actions	Aligned with *(ongoing initiatives/other actions)*	Responsible agency *Primary (p) Secondary (s)*	Potential source of funding	Output	Outcome	Co-benefit	Timeline *(Targeted year of completion of action)*
***E&B- 1**: Achieve higher penetration of energy-efficient appliances and clean fuel transition in all major sub-sectors (residential, commercial, institutional, and industrial)*									
Goal/Target: 40% of new appliance technology will be of high-range energy efficiency by 2030									
	E&B 1.1.	Ensure the use of energy-efficient fixtures and appliances (especially cooling appliances) in all public buildings by 2030	a. Hosa Belaku Phase II scheme b. Energy Conservation and Energy Efficiency Policy 2022-2027	P: BBMP S: KREDL, BESCOM	a. Grants from Green Climate Fund and Green Energy Fund b. Carbon Cess c. Projects implemented under State Energy Conservation Fund d. Credit line/ loans from banks e. Corporate social responsibility funds	% increase in the energy-efficient fixtures and appliances in municipal and public buildings	% increase in energy savings	Accelerate Smart Cities Mission	2030

	E&B 1.2	Conduct regular energy audits for all MSMEs consuming a load of 100KW or more, to assess assets and processes, and create an institutional mechanism to make audits mandatory. The nodal agency for Perform Achieve Trade (PAT) scheme (KREDL) can prepare and provide the Energy Audit guideline manual as per the notification of the Bureau of Energy Efficiency (BEE) on the manner and periodicityfor conducting energy audits.	a. PAT Scheme b. SME division schemes	P: BBMP, Department of Industry and Commerce S: KREDL, MSME Development Institute, KSPCB	a. Technology and Quality Upgradation Support Scheme b. National Small Industries Corporation (NSIC) schemes c. Coir Udyami Yojana	a. Approved institutional mechanism for energy audits b. Number of MSMEs audited	a. Reduced energy and production costs b. Increase the lifespan of equipment c. Operational performance improvements in MSMEs d. Increase in low-carbon fuels	a. Improved indoor occupancy comfort b. Reduced GHG and ambient air pollutant emissions c. Improved health	2030
	E&B 1.3	Encourage shift to electric motor-driven systems from fossil-fuel driven systems in all PAT and Non-PAT industries.	a. PAT Scheme b. SME division schemes	P: BBMP, Department of Industry and Commerce S: KSPCB	a. Technology and Quality Upgradation Support Scheme b. National Small Industries Corporation (NSIC) Schemes c. Coir Udyami Yojana d. Credit Linked Capital Subsidy	a. % increase in electric motor-driven systems in PAT and Non-PAT industries	a. Operational performance improvements in MSMEs (Reduced energy and production costs)	a. Improved indoor occupancy comfort b. Reduced GHG and ambient air pollutant emissions c. Improved health	2035

					(CLCS) for Technology Upgradation				
	E&B 1.4	Establish 'energy management cells' at the MSME cluster levels to promote "Zero Defect Zero Effect Manufacturing (ZED)"	a. PAT Scheme b. MSME Sustainable (ZED) Certification	P: BBMP, Department of Industry and Commerce S: KSPCB	a. Technology and Quality Upgradation Support Scheme b. National Small Industries Corporation (NSIC) schemes c. Coir Udyami Yojana	a. Energy Management cell in every MSME cluster within the BBMP boundary b. Number of industries adopting ZED	a. Operational performance improvements in MSMEs (reduced energy, production costs etc.)	a. Reduced GHG and ambient air pollutant emissions b. Improved health c. Reduce negative effects on environmen t	2030
	E&B 1.5	Ensure the replacement of existing conventional electricity meters with digital ones. Create advanced metering infrastructure to enable a bidirectional flow of information and power. Advanced metering infrastructure includes integrated billing application, user	a. Energy Conservation and Energy Efficiency Policy 2022-2027	P: BESCOM	a. BESCOM Budget	a. Number of houses using electricity meters (digital) b. Integrated customer billing services app	a. Swift billing and robust tracking system b. Improved demand-side management system c. Accurate data available on consumption and load	a. Improved data collection and repository b. Reduced carbon footprint	2027

		interface tracking, etc., using IoT							
	E&B 1.6	Incentivise citizens to achieve a behavioural shift towards energy-efficient appliances especially cooling appliances. Programmes such as the “exchange premium concept” to increase the uptake of energy-efficient appliances. The premium would provide a higher subsidy to low-income groups. KREDL to provide guidelines and technical support for the BBMP to take up the initiative	a. Pavan Scheme b. Hosa Belaku II Scheme c. Energy Conservation and Energy Efficiency Policy 2022-2027	P: BBMP S: BESCOM, KREDL	a. Grants from Green Climate Fund and Green Energy Fund b. Carbon Cess c. Projects implemented under State Energy Conservation Fund d. Credit line/ loans from banks e. Corporate Social Responsibility funds	a. Number of programmes or schemes for incentivisation b. Number of people participating in the programme or schemes c. % increase in the number of energy-efficient appliances	a. % increase in energy savings	a. Smart Cities Mission accelerated b. Uptake of circular economy c. Reduce carbon footprint d. Improve standard of living	2035
	E&B 1.7	Develop a low-cost financing scheme for the uptake of energy	a. Pavan Scheme b. Hosa	P: BBMP	a. Municipal corporation budget	a. Number of low-cost financing	a. Improvements in the uptake of	a. Smart Cities Mission	2030

		efficiency projects via a special property tax assessment or utility bill, especially for MSMEs and low-income group households.	Belaku II Scheme c. Energy Conservation and Energy Efficiency Policy 2022-2027	S: BESCOM, KREDL		schemes b. % of people participating in the scheme	energy efficiency appliances b. % increase in energy savings	accelerated b. Reduce carbon footprint c. Improve standard of living	
	E&B 1.8	Conduct mandatory energy audits for all the public buildings with a connected load of 100kW or certain threshold to assess their energy efficiency potential	a. Smart City Missions	P: BBMP S: PWD	a. Municipal corporation budget	a. Number of public buildings assessed b. % shift to energy-efficient buildings	a. Improve evidence-based analysis and decisions	a. Accelerate Smart Cities Mission b. Reduce carbon footprint	2030
	E&B 1.9	Facilitate private players' involvement in municipal energy efficiency projects by creating a platform for them to be a part of the development, financing, and/or implementation of projects	a. Smart City Missions	P: BBMP S: KREDL	a. Municipal corporation budget	a. Budget allocation for the platform b. Develop and launch the platform c. Suitable agreements/contracts for the private players drafted	a. Accelerate energy efficiency project uptake b. Improve PPP	a. Accelerate Smart Cities Mission b. Reduce carbon footprint	2030
E&B-2: *Promote green buildings and low-carbon buildings with passive and active design strategies* Goal/Target: By 2030, 42% of new residential buildings and 48% of new commercial buildings will adopt insulated walls and roofs, improved window technology, and improved building services design									
	E&B 2.1	Revision of BBMP building bye-law to include Eco Niwas Samhita as per the EC	a. Energy Conservation Building Codes (ECBC)	P: BBMP S: KREDL	a. Municipal corporation budget b. Credit line/	a. Approved revision of BBMP building-bye laws	a. Increase in the number of energy-	a. Creation of green jobs	2025

		Act Amendment 2022, to mandate the implementation of energy-efficient design in residential buildings.	b. Eco Niwas Samhita (ENS) Part 1 and Part 2		loans from banks c. Corporate Social Responsibility funds – General		efficient buildings		
	E&B 2.2	Enforce the Karnataka Energy Conservation Building Code (KECBC) 2018 within BBMP limits, since it is gazetted by the GoK and its implementation is mandatory for commercial buildings.	a. ECBC b. ENS Part 1 and Part 2	P: BBMP S: KREDL	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % increase in ECBC-compliant commercial buildings	a. Increase in the number of energy-efficient buildings	a. Creation of green jobs	2025
	E&B 2.3	Promote and incentivise the adoption of the 'adaptive reuse architecture' concept to all existing and unused/old buildings to reduce construction and demolition waste disposal to landfills.	a. ECBC b. ENS Part 1 and Part 2	P: BBMP S: KREDL, PWD	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % buildings adopting adaptive reuse architecture b. % increase in recycled/recyclable material used in building construction c. % reduction in construction waste	a. Increase in the number of green and zero-carbon-ready buildings b. Improve landfill waste management	a. Creation of green jobs b. Improve ambient air quality	2035

	E&B 2.4	Ensure that a portion (50%) of public buildings' energy requirement is met with passive solar design concepts such as rooftop solar power systems and solar water heaters.	a. ECBC b. ENS Parts 1 and 2	P: BBMP S: BESCOM, KREDL	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % of buildings adopting passive solar design concept b. % reduction in grid-electricity consumption	a. % increase in energy savings	a. Creation of green jobs	2035
	E&B 2.5	Promote implementation of low thermal mass design such as clay, fly ash bricks, etc., over thermally massive materials such as concrete in all buildings	a. ECBC b. ENS Part 1 and Part 2	P: BBMP S: KREDL, PWD	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. Number of promotions on ECBC and ENS b. Number of buildings adopting low thermal mass design	a. Improve occupancy thermal comfort b. % increase in energy savings	a. Creation of green jobs b. Better indoor air quality	2035
	E&B 2.6	Revise the BBMP building bye-laws to mandate the implementation/uptake of green roof systems for all new buildings beyond a certain footprint/roof area in line with Eco Niwas Samhita guidelines.	a. ECBC b. ENS Part 1 and Part 2	P: BBMP S: KREDL	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % green roof cover achieved b. Number of suppliers providing automated irrigation systems for roof tops	a. % increase in green cover b. % reduction in heat island effects	a. Creation of green jobs b. Better indoor air quality	2030

	E&B 2.7	Offer incentives and subsidies to all stakeholders throughout the value chain (consumers, manufacturers, distributors, etc.) to ensure the uptake of non-VOC (volatile organic compound) materials.	a. ECBC b. ENS Part 1 and Part 2	P: BBMP S: KREDL, PWD	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % of buildings using non-VOC materials	a. Improve occupants' health and indoor comfort	a. Better indoor air quality	2030
	E&B 2.8	Promote ECBC/ENS buildings in the city by providing incentives to building owners through instruments such as property tax rebates, increase in FSI/FAR allowance, etc. KREDL to prepare and provide the financial incentives guidelines for initiation.	a. ECBC b. Eco Niwas Samhita Part 1 and Part 2	P: BBMP S: KREDL	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % increase in ECBC and ENS compliance in the buildings b. % banks that are providing financial support c. Number of buildings in the financial incentives programme	a. Improved occupants' indoor climate comfort b. Improve the standard of living	a. Creation of green jobs b. Better indoor air quality	2030
	E&B 2.9	Mandate all HVAC buildings covered under the scope of ECBC and ENS to implement heat recovery ventilation (HRV) or energy recovery ventilation (ERV) by 2030.	a. ECBC b. Eco Niwas Samhita Part 1 and Part 2	P: BBMP S: KREDL	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % of HRV/ERV implementation in the buildings	a. % increase in energy savings	a. Better indoor air quality	2030

	E&B 2.10	Subsidise reversible ceiling fans for most vulnerable people and low-income groups, the fans are used to circulate indoor air and can be used in both hot and cold seasons.	a. ECBC b. Eco Niwas Samhita Part 1 and Part 2	P: BBMP S: BESCOM, KREDL	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. Approved subsidisation of reversible ceiling fans b. % users of reversible ceiling fans	a. Improved occupancy thermal comfort b. % increase in energy savings		2030
	E&B 2.11	Conduct IEC campaigns to sensitise all relevant stakeholders on a) Low-carbon buildings, b) Smart building concepts, c) Green buildings	a. ECBC b. Eco Niwas Samhita Part 1 and Part 2	P: BBMP S: All other agencies	a. Municipal corporation budget b. Credit line/ loans from banks c. Corporate Social Responsibility funds – General	a. % of new buildings complying with ECBC b. % of existing buildings retrofitting buildings to ECBC compliant	a. % increase in energy savings	a. Accelerate Smart Cities Mission	2030
	E&B 2.12	Develop energy auditing guidelines and implement energy auditing measures in all buildings	a. ECBC b. Eco Niwas Samhita Part 1 and Part 2	P: BEE S: KREDL, BBMP		a. Approved guidelines and measures	a. Increase in ECBC and ENS compliant buildings b. % increase in energy savings	a. Creation of green jobs	2030
	E&B 2.13	Review the scope of ECBC and ENS to assess feasibility of including certain aspects of energy efficiency in the existing building stock. This should be done based on an in-depth study of existing commercial and residential building	a. ECBC b. Eco Niwas Samhita Part 1 and Part 2	P: KREDL	KREDL's Own funds	a. Updated ECBC b. Updated ENS	a. Increase in ECBC and ENS compliant buildings b. % increase in energy savings	a. Better indoor air quality	2030

		stocks in Bengaluru and their present status of energy efficiency.							
E&B-3: *Increase the mix of non-fossil fuel sources in the city's grid electricity generation, 68% by 2030 and 89% by 2050*									
	E&B 3.1	Ensure that by 2035, 50% of BESCOM's grid electricity is from a decentralised renewable resource network, while enhancing service delivery potential.		P: Energy Department-GoKKPTCL S: BESCOM	GoK Budget	a. % increase in private suppliers for renewable energy (RE) b. % increase in the expansion of hybrid RE plants c. % of RE energy in the grid mix	a. % GHG emission reduction b. Accelerate decarbonisation	a. Reduction in ambient air pollution b. Creation of green jobs	2035
	E&B 3.2	Conduct a study to assess the capacity of existing grid infrastructure before tendering out solar and wind projects to BESCOM		KPTCL	GoK Budget	a. % readiness of grid infrastructure for variable renewable energy (VRE) b. % increase in the number of energy storage systems	a. % reduction in curtailment of VRE	a. Creation of green jobs	2030

	E&B 3.3	Develop a roadmap to phase out thermal power plants (TPPs). Prepare athermal power plant transition plan, under which older and inefficient thermal plants are progressively retired and newly established thermal power plants continue to supply base load.		P: Energy Department-GoK, KPCL S: KPTCL, PCKL	GoK Budget	a. Approved roadmap b. Number of inefficient thermal power plants retired	a. % Improvement in power generation efficiency b. % Improvement in water resource management of TPPs	a. Reduction in ambient air pollution	2030
	E&B 3.4	Establish an Integrated Renewable Energy Resource Management (IRERM) cell for the city through the collaboration of BBMP (town planning and revenue department), BESCOM, KREDL, and other key stakeholders. This cell will develop a roadmap to increase the city's renewable energy potential.	a. Karnataka Renewable Energy Policy b. Har Ghar Solar Mission c. Jawaharlal Nehru National Solar Mission (JNNSM)	P: BBMP S: BESCOM, KREDL	a. Municipal corporation budget b. GoK Budget	a. IRERM cell b. Number of stakeholders in the cell c. Approved roadmap d. % increase in uptake of off-grid renewable energy plants	a. % Improvement in multi-sectoral coordination	a. Reduction in ambient air pollution b. Creation of green jobs	2027
	E&B 3.5	Ensure implementation of utility-scale energy storage for load or supply, to enhance the power generation flexibility of rooftop solar systems and other	a. Karnataka Renewable Energy Policy b. Har Ghar Solar Mission c. JNNSM	P: BESCOM S: KREDL, BBMP, PWD	GoK Budget	a. % increase in utility-scale storage b. % reduction in peak loads	a. % reduction in GHG emissions b. % reduction in power outages	a. Reduction in ambient air pollution b. Creation of green jobs	2030

		renewable energy sources.							
	E&B 3.6	EV charging stations to be mandated to source apportion (50%) of its electricity through rooftop solar energy.	a. Karnataka Renewable Energy Policy b. JNNSM	P: BESCOM S: BBMP, PWD	a. Municipal corporation budget b. GoK Budget	a. % of EV stations with rooftop solar power systems b. % Increase in rooftop solar systems	a. % reduction in peak loads in grid infrastructure b. % reduction in GHG emissions	a. Reduction in ambient air pollution b. Creation of green jobs	2030
	E&B 3.7	Reduce the up-front cost of rooftop solar systems and installation charges by promoting collaborations and developing platforms to facilitate largescale uptake through bulk purchases.	a. Karnataka Renewable Energy Policy b. Har Ghar Solar Mission c. JNNSM	P: BBMP S: BESCOM, KREDL	a. Municipal corporation budget b. GoK Budget	a. Approved bulk purchasing platform b. % of people enrolled in the platform	a. Increase rooftop solar systems uptake	a. Reduction in ambient air pollution b. Creation of green jobs	2030
	E&B 3.8	Develop a roadmap to manage the potentially massive volumes of solar panels and storage battery waste threatening to overwhelm landfills.	a. Karnataka Renewable Energy Policy b. Har Ghar Solar Mission	P: Energy department-GoK S: KREDL, BESCOM, BBMP	a. GoK Budget b. Municipal corporation budget	a. Approval of guidelines	a. % reduction in e-waste b. Improved hazardous waste handling	a. Creation of green jobs b. Better solid waste managemen t	2030
	E&B 3.9	Operationalise Green Energy Open Access (GEOA) rules, so that	a. Karnataka Electricity Regulatory	P: BESCOM, KERC		a. Open access to electricity from	a. Greater access to affordable	a. Creation of green jobs	2025

		smaller consumers can also enter into contracts with RE generators.	Commission (Terms and Conditions for Green Energy Open Access (GEOA) Regulations, 2022	S: Energy Department, BBMP		renewable sources	renewable energy		
E&B-4: *Implement effective communication methods for nudging behavioural changes by adopting behavioural science principles through IEC programs*									
	E&B 4.1	Conduct IEC campaigns to sensitise financiers such as banks to provide low-cost loans for the uptake of green technologies and business models.		P: BBMP, KREDL S: Financial institutions	GoK Budget	a. Number of trainings and workshops b. Number of banks and financial institutions participating	a. Improvement in financial assistance for RE projects	a. Creation of green jobs b. Accelerate Smart Cities Mission	2030
	E&B 4.2	Conduct an annual flagship event to engage with organisations and people involved in rooftop solar, and promote rooftop solar deployment.		P: BESCOM S: KREDL	GoK budget	a. Number of events conducted b. % people participating and organisations attending the events	a. Citizens and stakeholders well informed on brands and technologies	a. Creation of green jobs b. Accelerate Smart Cities Mission	2027
	E&B 4.3	Conduct regular (half yearly) capacity-building workshops to upskill the technical knowledge of shop floor technicians	a. Building awareness on intellectual property rights (IPRs)	P: Department of Industry and Commerce	GoKbudget	a. % MSME clusters covered b. Number of shop floor	a. Improve skills b. Increase energy savings	a. Creation of green jobs b. % reduction in	2030

		pertaining to energy efficiency.	b. Lean manufacturing competitiveness for MSMEs	S: BBMP		technicians participating		GHG and air pollution emissions	
	E&B 4.4	Develop an open access platform and maintain information on different rooftop solar systems and hot heaters vendors/service providers		P: BESCOM S: KREDL	GoK Budget, BESCOM Budget	a. Approved platform b. % increase in uptake of rooftop solar systems and solar water heater	a. Improve local business	a. Creation of green jobs b. % reduction in GHG and air pollution emissions	2027
	E&B 4.5	Conduct R&D activities to understand the barriers/gaps that hinder households from taking up eCooking. Devise measures to support its adoption accordingly.	a. Go Electric campaign - eCooking devices	P: BBMP S: KREDL, BESCOM	GoK Budget	a. Approved number of R&D activities b. % increase in the uptake of electric cooktops	a. % Increase in energy savings	a. Reduction in indoor air pollution b. Improve women's empowerment and health resilience	2027
E&B-5: *Develop a programme for affordable clean cooking fuel transition*									
Goal/Target: 100% transition from solid fuel to clean cooking fuel by 2030									
	E&B 5.1	Prohibit the use of solid biomass for all purposes. Regulate the usage of solid biomass in hard-to-abate sectors such as eateries (cooking), kerbside ironing (heating), etc.	a. PMUY	P: BBMP S: Food and Civil Supplies Department, Forest Department	a. GoK fund b. Municipal corporation budget	a. % reduction of types of solid fuels in the city b. % reduction in establishments selling solid fuel	a. Increase in uptake of LPG/PNG and electric cooking	a. Reduction in indoor air pollution b. Improve women's empowerment and health resilience c. Improve	2027

								standard of living	
	E&B 5.2	Ensure newer appliances like electric rice cookers and induction cookstoves are enrolled in energy star-rated programmes. KREDL to share a proposal with BEE for the enrolment of electric rice cookers and induction cook stoves S and L (Standards and Labeling) programmes.	a. Go Electric campaign – eCooking devices b. Standards and Labelling Schemes	P: BEE S: KREDL	a. GoK fund	a. % increase of electric cookers and induction stoves having energy efficiency ratings		A. Reduction in indoor air pollution b. Improve women's empowerment and health resilience c. Improve standard of living	2035
	E&B 5.3	Monitor and streamline subsidies to focus on clean cooking energy rather than those for a particular fuel.	a. Go Electric campaign - eCooking devices	P: BBMP	a. GoK fund b. Municipal corporation budget	a. Approved subsidy b. Approved monitoring method			2027
	E&B 5.4	Develop a monitoring and evaluation framework that uses mixed methods to monitor clean fuel adoption and use	a. Go Electric campaign - eCooking devices	P: BBMP S: All other agencies	a. Municipal corporation budget	a. Approved framework	a. Increase in clean cooking fuel adoption		2025
	E&B 5.5	Incentivise service providers/vendors to provide free maintenance of cooking stoves to vulnerable communities and low-income groups — this can be done through tax	a. Go Electric campaign - eCooking devices	P: BBMP	a. GoK fund b. Municipal corporation budget	a. Number of service providers/vendors getting incentives b. Number of free	a. Increase in cooking fuel efficiency		2030

		rebates and government subsidies, and other financial mechanisms.				maintenance provided			

2 Transportation

Sectoral action tracks

No.	Action track
T-1	Reducing travel distances and minimising travel needs by adopting suitable urban planning measures, improving transport planning processes, and developing a coherent policy ecosystem
T-2	Improving public transport ridership through multimodal integration and steering demand away from private vehicles
T-3	Improving NMT access and infrastructure for a healthier and safer city
T-4	Transitioning to cleaner and greener vehicles; and improving vehicle efficiencies through increased access to finance, policy enablers, incentives and promoting R&D
T-5	Transitioning to cleaner and greener freight services through policies, incentives, and fleet management
T-6	Ensuring a resilient urban transport system to avoid service disruptions and damage of transport infrastructure during extreme weather events which impact people, nature and economy of the city

Track-wise actions

Priority	S.No	Actions	Aligned with *(Ongoing initiatives/other actions)*	Responsible Agency *Primary (P) Secondary (S)*	Potential source of funding	Output	Outcome	Co-benefit	Timeline *(Targeted year of completion of action)*
T- 1: *Reducing travel distances and minimising travel needs by adopting suitable urban planning measures, improving transport planning processes and developing a coherent policy ecosystem*									
Goal/Target: 92% of the new households in the city (from 2019) should be in Transit-Oriented Development areas by 2050									
	T 1.1	Implement the approved TOD Policy for better land use transport integration	Integrated Land Use and Mobility Plan of CMP, 2020	P: DULT/BMLTA, S: BDA, Bangalore International Airport Area Planning Authority (BIAAPA), GoK ,BBMP, BMRCL, KRIDE, BIAL, BMTC, KSRTC, BMRDA, BWSSB, BESCOM, KIADB, Bengaluru Traffic Police Other contributing agencies: DTCP, NHAI, PWD, Urban Development Department (UDD), KSDMA, KLCDA, KFD, KSPCB, KSFESD	GoK, BMLTA/ Urban Transport Infrastructure Fund/ planning/ implementing agency resources, PPP, other innovative funding mechanisms	a. Increase in ridership of PT b. No. of households within station areas c. % of commuters walking/cycling to and from metro stations d. Approved RMP 2041 e. No. of TOD Corridor and Zone Plans (TZP) prepared and approved; f. No. of public-sector and private-sector TOD	a. Increase in mode share of PT and NMT modes b. % increase in population/job densities in TOD Zones (against baseline and non-TOD areas) or number of DUs and commercial floor space	a. Reduced air pollution b. Reduced congestion c. Reduction in travel time d. Reduction in urban sprawl	By 2035 TZPs for all mass transit stations in the city should be prepared, integrated with the RMP, and adopted

	T 1.2	Ensure the integration of TOD Policy with the Masterplan (RMP, which is currently being revised)	Integrated Land Use and Mobility Plan of CMP, 2020	P: BDA S: All concerned development, regulating, and sectoral/line agencies	BDA's own funds	schemes/projects approved and implemented			
	T 1.3	Prepare ***TOD Zone Plans (TZP)*** to ensure higher FSI, higher densities and mixed use development around mass transit stations (as per the TOD Policy)	Integrated Land Use and Mobility Plan of CMP, 2020	P: DULT/ BMLTA, S: BDA, BIAAPA, GoK , All concerned development, regulating, and sectoral/line agencies	GoK, BMLTA/DULT's own funds, BDA's own funds				
	T 1.4	Design a **Green Credit Scheme** to incentivise employers to adopt remote work policy to reduce work trips		P:Transport Department, S: Finance Department , BBMP, BMLTA/DULT	GoK	a. Green Credit Scheme drafted, approved, and implemented	a. Reduction in number of work trips b. Reduction in total number of trips c. Reduction in number of vehicles on road	a. Reduced air pollution b. Reduced congestion c. Reduced travel time	2025

	T 1.5	Implement the approved BMLTA Bill and establish the authority for coordinated action among different transport stakeholders	Governance Measures mentioned by CMP, 2020	P: UDD S: DULT	GoK, DULT's own funds	a. BMLTA Act b. Functioning BMLT Authority in the city	a. Increased coordination amongst different stakeholders involved in transport plans, projects and policies in the city	a. Efficient and effective transport system in the city	2024
	T 1.6	Establish an **integrated project planning, management, monitoring, reporting and evaluation system** for the transport sector. This system would measure and report the carbon footprint and air pollution data corresponding to each transport project in the city on an annual basis	Approved BMLTA Bill; Governance measures mentioned by CMP, 2020	P: BMLTA/DULT S: All service operators, transport planning and regulatory agencies	GoK, BMLTA/DULT's own funds	a. Single platform for coordinated actions in the transport sector b. Identification of major GHG emitting/polluting transport projects	a. Data-driven decision-making and transport planning b. Streamlined transport planning processes	a. Efficient use of time and resources b. Improved transport system c. Reduction in GHG emissions from transport sector	2030
	T 1.7	Create an **integrated spatial database** for transport (parameters and indicators) which is accessible and regularly updated by relevant stakeholder departments. This database will also be	Regulatory measures mentioned by CMP, 2020	P: BMLTA/DULT S: All service operators, transport planning and regulatory agencies	GoK, BMLTA/DULT's own funds	a. Single database for all transport-related parameters and indicators related to the city, which is	a. Data-driven decision-making and transport planning b. Ease of calculating	a. Improved transport system in the city b. Reduction in GHG	2030

		used to measure and report annual GHG emissions from the transport sector.				updated regularly	GHG emissions from transport sector in the city	emissions from transport sector	

	T 1.8	Conduct **capacity-building workshops** for officials of different stakeholder departments on TOD, MMI, and on planning, design, and engineering for more sustainable transport. The objectives of these workshops would vary for different levels of officials. They could focus on need assessment, sensitisation, improving awareness, and/or capacity-building.	Bengaluru TOD Policy	P: BMLTA/DULT S: All service operators, transport planning and regulatory agencies	BMLTA/DULT's own funds	a. No. of capacity-building workshops conducted	a. Informed decision-making/implementation of transport projects/plans/policies b. Adoption of sustainable and improved transport planning framework/approach in the city.	a. Optimal use of resources b. Reduction in GHG emissions and air pollution c. Reduction in use of private vehicles d. Increase in PT and NMT usage	2025
T- 2: *Improving public transport ridership through multimodal integration and demand management away from private vehicles*									

Goal/Target: The combined share of public transport (PT) and non-motorised transport (NMT) in total no. of trips to be 75% by 2030, 80% by 2040, 85% by 2050.									
	T 2.1	Revise, detail and implement CMP's Public Transport Improvement Plan to include the following mandates: Improved network connectivity, optimised capacities through rationalisation of services (routes and schedules), accessible and affordable first- and last-mile connectivity, seamless multimodal integration (MMI), enhanced commuter comfort, universally accessible infrastructure, energy efficient and reliability.	Public Transport Improvement Plan of CMP, 2020	P: BMLTA/DULT S: Service operators (BMRCL, BMTC, KRIDE, KSRTC), BBMP, Traffic Police	Own funds of BMLTA/DULT, service operators and BBMP	a. % of population with access to PT stops (bus stops, metro stations/, etc.) within 5 minutes of walking distance b. % of buses with ramps, special seats for women and the elderly and other special groups c. PT network density in low-income areas d. level of	a. Increased mode share of PT b. Increased PT ridership (disaggregated by gender and income level) c. Reduced fuel consumption d. Increased average travel speeds (kmph)	a. Reduction in air pollution b. Reduction in congestion c. Reduction in travel time	2028

	T 2.2	Create bus priority lanes as prescribed by CMP, and improve services by adding components such as safe and usable bus stops integrated with Passenger Information System (PIS) interface, clear signages to help commuters navigate, etc. to improve efficiency and user experience	Public Transport Improvement Plan of CMP, 2020	P: BBMP S: BMLTA/DULT, BMTC	Own funds of BBMP and BMLTA/DULT	perceived comfort and quality of public transport service (safety, reliability, frequency, crowding, availability of seats) on services and routes used			2026
	T 2.3	Develop a commuter-facing platform for information dissemination(PIS), common ticketing for all PT modes (along the lines of National Common Mobility Card) and to establish a commuter helpline to address grievances and gather feedback on safety, access, and reliability	Technological Measures of CMP, 2020	P: BMLTA/DULT S: BMTC, BMRCL, KRIDE, KSRTC, IPT operators	BMLTA/DULT's own funds	a. Single public PIS interface/platform for common ticketing and common helpline b. No. of users registered/using this interface	a. Increased commuter safety b. Increase in mode share of public transport c. Increased ridership (disaggregated by gender and income level) d. Reduction in waiting time	a. Quick and easy information dissemination during hazards b. Reduction in air pollution	2025

	T 2.4	Create attractive ticket fare structure with targeted incentives to attract more commuters to use PT, especially those from marginalised low-income groups, women, the elderly, children, etc.	Multi-Modal Mobility Plan and Regulatory Measures of CMP, 2020	P: BMLTA/DULT S: BMTC, BMRCL, KRIDE, KSRTC, IPT operators, Transport Department	GoK	a. No. of passes issued for low-income groups, women, and the elderly	a. Increase in mode share of public transport b. Increased ridership (disaggregated by gender, income level) c. Decrease in % of monthly income spent on transport for these groups	a. Increase in employment and education opportunities b. Increase in monthly savings	2025
	T 2.5	Facilitate shift in incentives provided by employers to employeesaway from private vehicles in favour of public transport. The scope of the **Green Credit Scheme** should include this.	Action No. T 1.4 (Green Credit Scheme)	P: GoK S: Transport Department, BBMP, BMLTA/DULT, Finance Department	GoK	a. Public transport allowance provided to employees	a. Increase in mode share of public transport b. Decrease in on-road private vehicles	a. Reduction in air pollution b. Reduction in congestion c. Reduction in fuel consumption	2025

	T 2.6	Chalk out a detailed **IPT plan** for the city (along the lines of CMP) which includes regulatory provisions and operational mechanisms for all IPT modes (autorickshaws, e-rickshaws, app-based taxis, etc.)	Public Transport Improvement Plan of CMP, 2020	P: BMLTA/DULT S: Transport Department	BMLTA/DULT's own funds	a. Accessible and affordable IPT services b. Improved first- and last-mile connectivity	a. Increase in mode share of public transport b. Decrease in on-road private vehicles	a. Reduction in air pollution b. Reduction in congestion	2025
	T 2.7	Identify new funding opportunities/mechanisms /business models (PPP) for PT operations and maintenance.	Fiscal measures of CMP, 2020	P: Transport Department, S: PPP, Finance Department	GoK	a. Increased investment in PT b. Increase in no. of PT vehicles on road	a. Increase in mode share of public transport	a. Reduction in air pollution b. Reduction in congestion c. Reduction in travel time	2026

	T 2.8	Create and implement a plan to restrict private vehicles plying in the city through strategies such as: 1) Creating congestion zones and car-restricted zones, and implementing congestion charges 2) Disincentivising private vehicles through instruments such as annual licence fee, additional tax on purchasing vehicles (road/fuel taxes, etc) 3) Preparing and implementing area parking plans for all zones as per the Parking Policy 2.0 and enforcing on-site parking with stringent measures such as cutting off power or water supply if not followed.	1) Private Transport Management Plan of CMP, 2020 2) Fiscal measures of CMP, 2020 3) Parking Policy 2.0	P:BMLTA/DULT, BBMP S: Traffic Police 2)GoK 3)Traffic Police 4)Transport Department	Own funds of BMLTA/DULT and BBMP. GoK funds	a. Increase in numberof paid parking spots b. Number of congestion/car-restricted zones c. Area parking plans for all zones	a. Reduction in the no. of private vehicles on road b. Reduction in the no. of private vehicles registered c. Increase in the mode share of public transport	a. Reduction in congestion b. Reduction in air pollution c. Revenue generated through parking and congestion fees	2028

	T 2.9	Conduct a study on policy levers to disincentivise owning of more than one vehicle per household.		P: BMLTA/DULT S: Transport Department	BMLTA/DULT's own funds	a. No. of vehicles per household	a. Reduction in the no. of private vehicles on the road b. Reduction in the no. of private vehicles registered c. Increase in the mode share of public transport	a. Reduction in congestion b. Reduction in air pollution	2025
	T 2.10	Under the **Green Credit Scheme**, conduct a study to explore the feasibility of repurposing of large vehicles (e.g., school buses) to ferry corporate employees and vice versa, and to identify appropriate enabling mechanisms (e.g., Revising RTO regulations, tax schemes, etc.)	Action No. T 1.4 (Green Credit Scheme)	P: BMLTA/DULT, S: Transport Department	GoK, BMLTA/DULT's own funds	a. Feasibility study on repurposing vehicles for multiple uses	a. No. of vehicles repurposed b. Reduction in the no. of vehicles on road	a. Reduction in congestion b. Reduction in air pollution	2025

	T 2.11	Training women drivers and incorporating components such as panic buttons and women-only compartments, to improve women's safety and enhance uptake of PT amongst women		P: BMTC, BMRCL, KRIDE S: Traffic Police, Transport Department	Service providers' (BMTC, BMRCL, KRIDE) own funds	a. No. of women drivers in PT modes b. Women only compartments or seats reserved for women in PT modes c. Availability of panic buttons in PT modes	a. Increased women's ridership in public transport b. Increased mode share of public transport	a. Increase in opportunities for women (employment, education) b. Reduction in air pollution	2026
T- 3: *Improving NMT access and infrastructure for a healthier and safer city*									
Goal/Target: The combined share of public transport (PT) and non-motorised transport (NMT) in total no. of trips to be 75% by 2030, 80% by 2040, 85% by 2050.									
	T 3.1	Approve the Active Mobility Bill and enforce it to create an enabling ecosystem to push for NMT modes	Draft Active Mobility Bill - Karnataka, 2021	P: UDD S: BMLTA/DULT	GoK	a. Active Mobility Act implemented and enforced	a. Availability of safe and accessible NMT infrastructure b. Increase in the no. of NMT users c. Increased mode share of NMT	a. Reduction in air pollution b. Reduction in congestion c. Decrease in monthly transport expenditure for NMT users d. Reduction in fuel consumption	2024
	T 3.2	The **Green Credit Scheme** should include the aspect of offering incentives to NMT modes. For example, employers could provide benefits to employees in the form of allowances to buy bicycles/credits for walking, etc.	Action No. T 1.4 (Green Credit Scheme)	P: Transport Department, S: Finance Department , BBMP, BMLTA/DULT	GoK, Employers' funds	a. Approved **Green Credit Scheme** includes incentives offered on NMT modes b. Incentives on using NMT offered by employers to employees			2025

	T 3.3	Revisit the operational and regulatory provisions to encourage more public bike sharing (PBS) operators in the city and ease access to finance for them.	Non-Motorised Transport Plan of CMP, 2020	P: BMLTA/DULT, S: BBMP, Transport Department, Financial Institutions	GoK, PPP	a. More PBS operators in the city b. Improved access to PBS system			2025
	T 3.4	Prepare an **NMT master plan** for creating complete NMT infrastructure network (inclusive of footpaths, cycle tracks, underpass, junctions, etc.) throughout the city which is accessible by all users irrespective of age/ability. This should be integrated with the proposed **Blue-Green Policy** and associated NBS strategies	*Aligned with action no. UPGBD 3.1 on **Blue-Green Policy** *Non-Motorised Transport Plan of CMP, 2020	P: BMLTA/DULT S: BDA, BBMP	Own funds of BMLTA/DULT, BBMP, BDA	a. NMT master plan integrated with the CMP and the proposed Blue-Green Policy			2026

	T 3.5	Prepare a **'Complete Street' guideline/standards** (along the lines of TenderSURE standards) andadhere to it for all roads. *(A 'Complete Street' is one that is designed to cater to the needs of all users and activities, through equitable allocation of road space. Some of the main elements of Complete Streets are footpath, cycle track, pedestrian crossing, bus stops, median, utilities, street lights, signages, etc.)*	TenderSURE Guidelines Draft Active Mobility Bill – Karnataka, 2021 Non-Motorised Transport Plan of CMP, 2020	P: BMLTA/DULT S: BBMP	BMLTA/DULT's own funds	a. Complete Street guidelines for the city – Drafted, approved and enforced			2025

	T 3.6	Conduct regular NMT audits at local levels by creating a mechanism which involves public participation using IT-enabled systems/platforms (crowdsourcing mechanisms)		P: BMLTA/DULT S: BBMP	BBMP's own funds	a. Institutional mechanism and platform/interface for conducting regular NMT audits			2026
	T 3.7	Design and conduct IEC campaigns for citizens to encourage behavioural shift in favour of NMT. Potential target groups could be RWAs, NGOs working on the ground, civic platforms, citizen groups, etc.	Travel Demand Management Plan of CMP, 2020	P: BMLTA/DULT, BBMP S: Service providers, NGOs	BBMP's own funds	a. No. of trainings/workshops/activities conducted			2026
T- 4: *Transitioning towards cleaner and greener vehicles; and improving vehicle efficiencies through increased access to finance, policy enablers, incentives and promoting R&D*									

Goal/Target: 90% of cars and motorcycles, 75% of buses - is to be powered by cleaner fuels by 2050									
	T 4.1	Offer incentives for EVs such as reduced parking fee and toll charges, waiver on fitness certificates	Technological measures of CMP, 2020	P: Transport Department S: BBMP	GoK funds, own funds of BBMP	a. No. of incentives offered for cleaner fuels b. Reduction in average TCO for EVs	a. Increase in EV vehicle sales and registrations by vehicle type b. No. of EVs (cleaner fuel vehicles) out of total vehicles registered in the city c. Reduction in the emission load of vehicular tailpipe emissions	a. Reduction in air pollution b. Reduction in monthly expenditure on fuel consumption	2026
	T 4.2	Offer incentives for BSVI (Bharat Stage Emission Standards 6) vehicles, such as road/fuel tax and registration fee reductions and facilitate the scrapping of older vehicles	Voluntary Vehicle Fleet Modernisation Programme (V-VMP)/Vehicle Scrappage Policy	P: Transport Department S: BBMP	GoK funds	a. No. of incentives offered for BSVI vehicles b. No. of operational Registered Vehicle Scrapping Facilities (RVSFs) and Automated	a. No. of BSVI vehicles registered out of total vehicles b. Reduction in the no. of total BSIV (and older) vehicles registered c. No. of	a. Reduction in air pollution	2030

						Testing Stations (ATSs)	vehicles scrapped		
	T 4.3	Implement an effective emission compliance system. Disincentivise higher-emitting vehicles by imposing Green Tax/Cess based on 'polluter pays' principle	Pollution Under Control Certificates (PUCC)	P: Transport Department S: MoRTH	GoK funds	a.No. of disincentivisation mechanisms imposed b. No. of vehicles in the city with valid PUCC	a. Reduction in the emission load of vehicular tailpipe emissions	a. Reduction in air pollution	2030

	T 4.4	Provide accessible EV charging infrastructure: (a) Develop common charging infrastructure standards across vehicle types and manufacturers. (b) Develop city-specific guidelines for setting up EV charging infrastructure in buildings and public places (c) Pilot EV chargers integrated with urban infrastructure such as streetlights (d) Identify spaces (such as petrol pumps) for charging larger vehicles (e.g., buses, freight, etc.) (e) Encourage and incentivise private participation in EV charging infrastructure development to enhance ease of doing business	Karnataka Electric Vehicle and Energy Storage Policy-2017 Handbook of EV Charging Infrastructure Implementation, NITI Aayog (https://www.niti.gov.in/sites/default/files/2021-08/HandbookforEVChargingInfrastructureImplementation081221.pdf)	P: a) GoI b) BESCOM c) BESCOM d) BBMP e) GoK S: a) GoK b) BBMP c) BDA d) Private players e) BESCOM	GoK funds, Own funds of BESCOM, BBMP, NCAP grants	a. Common charging infrastructure standards across vehicle types and OEMs b. City-specific charging infrastructure guidelines for buildings and public places c. No. of EV chargers in public spaces, integrated with urban infrastructure d. No. of EV charging yards (for larger vehicles) e. No. of private EV charging stations set up	a. Increase in the no. of total EV charging stations in the city b. Increase in the no. of EVs registered	a. Reduction in air pollution b. Reduction in monthly expenditure on fuel consumption	2026

	T 4.5	Facilitate private players to conduct R&D on battery recycling, retrofitting of fossil fuel vehicles to enable them to use cleaner fuels, etc., by providing seed funds/subsidies, promoting ease of doing business, strengthening start-up ecosystems.	Karnataka Electric Vehicle and Energy Storage Policy – 2017	P: Transport dept.	GoK funds	a.No. of new R&D products/processes/concepts developed around switching from ICE to cleaner fuel vehicles	a. Increase in the no. of cleaner fuel vehicles in the city	a. Economic opportunities b. Reduction in air pollution c. Reduction in monthly expenditure on fuel consumption	2028
	T 4.6	Conduct a study to understand the feasibility of using hydrogen as a fuel in public transport (buses)	*National Hydrogen Mission *India's Long-Term Low-Carbon Development Strategy (MoEFCC)	P: BMTC, KSRTC S: DULT/BMLTA	Own funds of BMTC and KSRTC	a. Feasibility study on hydrogen buses in Bengaluru	a. Increase in the no. of hydrogen buses in the city	a. Reduction in air pollution	2026
	T 4.7	Prepare a **Clean Fuel Transition Plan** for Bengaluru with 2040 as the horizon year. This plan should be prepared for all modes, particularly buses and IPT modes (autorickshaws, etc.).		P: BMTC, KSRTC, DULT/BMLTA S: GoK, Transport Department	Own funds of BMTC, KSRTC and DULT/BMLTA; NCAP grants	a. Clean Fuel Transition Plan, 2040, for Bengaluru	a. Increase in the no. of cleaner fuel vehicles registered in all modes (especially buses and IPT) b.Reduction	a.Avoiding carbon lock-in b. Reduction in air pollution c.Reduction in monthly expenditur	2026

							in the no. of ICE vehicles	e on fuel consumption d.Improved resource efficiency	
	T 4.8	Make access to finance easier through strategies such as: a) Providing low-income drivers and small businesses with easy loans to reduce up-front costs of EV b) Better communication of MUDRA loans	*FAME 2 *Karnataka Electric Vehicle and Energy Storage (KEVES) Policy-2017	P: Financial institutions (eg. Banks) S: Transport Department	FAME 2, GoK (KEVES Policy), low-interest loans by banks	a. No. of incentives for low-income drivers	a. Increase in the no. of EV registrations	a. Reduction in air pollution b. Financial support to low-income households	2025

	T 4.9	Conduct IEC campaigns to sensitise stakeholders regarding cleaner fuel vehicles (benefits, infrastructure requirements, usage, fuel efficiency, battery recycling, etc.) *(Stakeholders groups include PT operators, potential EV buyers, charging infrastructure developers, actors involved in vehicle servicing and maintenance etc.)*	LiFE (Lifestyle For Environment) Mission	P: DULT/BMLTA, BBMP S: NGOs, citizens' groups	NCAP grants, own funds of BBMP	a. No. of trainings/sessions/activities conducted b. No. of people reached through IEC campaigns	a. Increase in the registration of EVs b. Increase in public acceptance and awareness of cleaner fuel modes	a. Reduction in air pollution b. Reduction in monthly expenditure on fuel consumption	2025
	T 4.10	Conduct training programmes targeted for marginalised groups to facilitate a just transition (to avoid externalities of cleaner fuel penetration)	*Karnataka Electric Vehicle and Energy Storage Policy-2017	P: Commerce and Industries Department (GoK) S: BBMP, private players	GoK	a. No. of training sessions/skill-building workshops, etc. conducted b. No. of women trained c. No. of low-income community members trained	a. Avoiding externalities of cleaner fuel penetration b. Increase in skilled workforce in the sector	a. New job opportunities b. Economic upliftment of marginalised groups	2026

	T 4.11	Give preference to agencies with low-carbon fleet when contracting for government/municipal services, or mandatorily include this requirement in new tenders.		P: BBMP S: All government departments/agencies	Departments'/agencies' own funds	a. No. of cleaner fuel vehicles used in providing municipal and government services	a. Increase in the total registration of cleaner fuel vehicles	a. Increased acceptance and awareness of cleaner fuel vehicles amongst citizens b. Reduction in air pollution c. Reduced monthly expenditure on fuel consumption, more government funds available for other activities	Contract preference and inclusion in tenders from 2025 (or after current lease expires)
T- 5: *Transitioning towards cleaner and greener freight through policies, incentives, and fleet management*									
Goal/Target: 47% of total freight vehicles to be powered by cleaner fuels by 2050									

	T 5.1	Offer incentives for electric freight such as parking fees reduction, road tax exemptions, flexible timings, relaxations in approvals or rebates for EV-ready warehouse	City Logistics Plan (under preparation by DULT)	P: BBMP S: Transport Department, freight operators,	FAME 2, own funds of BBMP	a. No. of incentives provided for electric freight b. % of electric 2W, 3W and 4W freight c. No. of warehouses with EV charging infrastructure	a. Reduction in the Emission Load of vehicular tailpipe emissions	a. Reduction in air pollution b. Reduction in monthly expenditure on fuel consumption	2025
	T 5.2	Prepare a plan to convert the entire SWM fleet to EVs, guided by the pilot implementation activity taken up by DULT and BBMP in 2022	Pilot project conducted by DULT in collaboration with BBMP and Kinetic Green Energy and Power Solutions Ltd, to study the feasibility of EVs in solid waste collection. (Carried out in 2 blocks of Ward no. 119 for 3 months	P: BBMP, DULT/BMLTA S: EV manufacturers, charging infrastructure providers	BBMP's own funds, NCAP grants, DULT/BMLTA's own funds	a. % of EV in the entire SWM fleet			2025
	T 5.3	Prepare a **Clean Fuel Transition Plan** for freight vehicles in Bengaluru, with 2040 as the horizon year.	City Logistics Plan (under preparation by DULT)	P: BBMP, DULT/BMLTA S: GoK, Transport Department, freight operators,	Own funds of BMTC and DULT/BMLTA; NCAP grants; GoK funds	a. Clean Fuel Transition Plan for Freight vehicles, 2040, for Bengaluru	a. Increase in the no. of cleaner fuel freight vehicles registered	a. Avoiding carbon lock-in b. Reduction in air	2026

				charging infrastructure providers			b. Reduction in the no. of ICE freight vehicles	pollution c. Reduction in monthly expenditure on fuel consumption d. Improved resource efficiency	
	T 5.4	Allow only EV-powered Light Duty Vehicles (LDVs) in the city, and ensure stringent enforcement of regulations for Heavy Duty Vehicles (HDVs)	City Logistics Plan (under preparation by DULT)	P: Traffic Police S: BBMP, DULT/BMLTA, Transport Department	Own funds of Traffic Police	a. % of EV LDVs inside the city compared with all LDVs b. No. of ICE-HDVs entering the city	a. Increase in the no. of EV LDVs registered b. Reduction in the no. ICE HDV registrations	a. Reduction in air pollution b. Reduction in congestion	2030

	T 5.5	Conduct a study on low-carbon freight under the City Logistics Plan. This should include understanding of gaps (infrastructure, finance, data, regulatory, etc.) in efficient multi-modal integration in collaboration with all stakeholders concerned (e.g. freight operators, railways, e-commerce companies, warehouse operators and government agencies)	City Logistics Plan (under preparation by DULT)	P: DULT/BMLTA S: GoK, Transport Department, Railways Department, freight operators, charging infrastructure providers	DULT/BMLTA's own funds; NCAP grants	a. Comprehensive study on low-carbon freight aligned with the City Logistics Plan	a. Reduction in the emission load of vehicular tailpipe emissions b. Optimised fleet movement and management of freight vehicles	a. Reduction in air pollution b. Reduction in congestion c. Resource efficiency	2026

T-6: *Ensuring a resilient urban transport system to avoid service disruptions and damage of transport infrastructure during extreme weather events which impacts people, nature and economy of the city*									
	T 6.1	Mandate inclusion of **climate non-negotiables** in all transport sector projects, plans, policies and value chain's scope. This should include: a) Climate resilience guidelines/standards in transport infrastructure planning, design and material consideration. b) Provisions for inclusiveness based on age, ability, and gender, and consultative bottom-up planning approaches, which result in higher *adaptive capacity*.		P: DULT/BMLTA, all service operators, BBMP S: Transport Department, GoK	Own funds of all agencies	a. Inclusion of climate non-negotiables in all transport plans, projects, policies, and value chains	a. Higher resilience of transport infrastructure and assets against climate/environmental hazards b. Higher adaptive capacity of transport infrastructure and assets in the face of hazards affecting the transport sector	a.Reduction in casualties, loss of life and property caused due to climate/environmental hazards affecting the transport sector	2026
	T 6.2	Conduct a study to build quantitative evidence on degree of loss and damage to transport infrastructure and assets caused by climate-induced hazards		P: DULT/BMLTA, BBMP S: All service operators	Own funds of DULT/BMLTA and BBMP	a.Comprehensive study on degree of loss and damage to transport infrastructure and assets due to climate-induced hazards			2026
	T 6.3	Mandate defensive driving training for new licences		P: Transport Department S: BBMP	Own funds of Transport Department and BBMP	a. No. of trainings conducted b. No. of people trained	a.Reduction in accidents and fatalities		2025

	T 6.4	Mandate third-party verification of all pothole repair activities as a part of standard quality control protocol		P: DULT/BMLTA S: BBMP	BBMP's own funds (Funding source for road construction)	a. Appointment of a third-party verifier	a. Improvement in the quality of city roads b. Reduction in the no. of potholes c. Reduction in accidents and fatalities		2025
	T 6.5	Prepare a **Road Network and Movement Plan** which ensures more than one type of connectivity for every location	Road Network Development Plan of CMP, 2020	P: DULT/BMLTA S: BBMP	Own funds of DULT/BMLTA	a. Road Network and Movement Plan	a. Improved connectivity for all locations b. Better access during disasters		2025
	T 6.6	Traffic management and hazard monitoring systems should speak to each other. Information dissemination during disasters should be done through the PIS platform.	Technological measures of CMP, 2020 KSNDMC's Hazard Monitoring system	P: KSNDMC S: BMLTA/DULT, all service operators, BBMP	GoK Funds	a. Hazard alerts and real-time updates on disasters provided to the public through the PIS system	a. Better disaster preparedness and response		2025

	T 6.7	A single agency should be identified (ideally BBMP) as a nodal agency, having the overarching responsibility for monitoring all climate-induced damage to the transport sector. Other stakeholders concerned (service operators, regulatory agencies, etc.) should coordinate with this nodal agency		P: BBMP S: BMLTA/DULT, all service operators, BBMP, Traffic Police	Own funds of BBMP	a. Selection and appointment of a single monitoring agency	a. Better disaster preparedness, response and recovery b. Better accountability		2026

3 Solid waste management

Sectoral action tracks

No.	Action track
SWM-1	Divert waste from landfills by better segregation of waste at source
SWM-2	Increase resource recovery and circular economy by promoting decentralised waste management systems
SWM-3	Implement scientific landfills with gas capture systems, and suitably repurpose closed landfills/dump sites
SWM-4	Create inclusive and hazard-resilient SWM infrastructure and services

Track-wise actions

Priority	S.No	Actions	Aligned with (ongoing initiatives/other actions)	Responsible Agency Primary (P) Secondary (S)	Potential Source of funding	Output	Outcome	Co-benefit	Timeline *(Targeted year of completion of action)*
SWM-1: *Divert waste from landfills by better segregation of waste at source*									
Goal/Target: To achieve 100% segregation of waste by 2025 and achieve over 90% of diversion of waste from landfills by 2050 (60% by 2030 & 75% by 2040)									
	SWM-1.1.	Ensure complete implementation of ward micro plan in all wards to manage and monitor waste in smaller units/blocks to facilitate segregation, increase accountability, and improve planning and governance.	BBMP SWM Manual, 2017	P: BBMP-BSWML S: BBMP-IT Department, Transport department	BBMP SWM Budget, SwachhBharat Mission – Urban	a. Ward micro plan (includes block map, centralised/decentralised facilities, workers and vehicles allotted, training, etc.) b. Per day waste generation from each block.	a. Increased segregation in smaller units	a. Improved service delivery b. Increased accountability and transparency c. Improved living conditions for poor communities d. Improved planning and governance e. Reduced GHG emissions due to transport f. Increased job opportunities	2025
	SWM -1.2	Conduct IEC campaigns to nudge the social behaviour of the citizens in favour of segregation of waste as per 3-bin system (wet, dry and sanitary). Also, create awareness on climatic impacts and	BBMP SWM Manual, BBMP Bye-laws	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – IEC funds	a. No. of awareness campaigns conducted on 3-bin segregation, waste recovery, etc. in the city	Increased 3-bin segregation at source	Improved health, livelihood and well-being.	2025

		opportunities relating to waste recovery/reuse.							
	SWM -1.3	Establish waste management cells in every ward as per ward micro plan, to conduct regular inspections, address grievances, monitor performance, and strengthen coordination between link worker, bulk waste generators, *pourakarmikas*, waste processing service providers, etc.	BBMP SWM Manual, BBMP Bye-laws	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Waste management cells in each ward b. Total no. of inspections conducted per ward per annum c. Total no. of grievances received/addressed per month d. Status of addressing grievances	Detailed inspection reports for each ward, and performance assessment for solid waste management	a. Improved service delivery b. Increased accountability and transparency c. Increased job opportunities	2025
	SWM 1.4	Ensure that every waste management cell establishes a command centre for 100% GIS digital mapping of waste collection bins and transport vehicles, and ensures continuous monitoring through a web-based platform.	BBMP SWM Manual, 2017	P: BBMP-BSWML S: BBMP-IT Department, Transport department	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Integrated command centre b. Efficiency of collection c. Low-carbon waste collection vehicles d. Reduced waste collection trips and distance	a. Increased waste segregation and collection performance. b. Reduced trips by waste collection vehicles	a. Improved service delivery b. Increased accountability and transparency c. Increased job opportunities d. Reduced GHG emissions from transportation	2025
	SWM 1.5	Ensure every ward has sufficient auto tippers and street sweeping machines to reduce travel distance and trips to collect waste. Convert solid waste fleet	BBMP SWM Manual, 2017	P: BBMP-BSWML S: BBMP-IT department, Transport	BBMP SWM Budget, Swachh Bharat Mission – Urban				2030

		to low-emission vehicles for reduced emissions		Department, DULT					
	SWM 1.6	Ensure C&D waste removal from public places where C&D projects are required to submit waste management plan (including details of recycling methods, use of mechanical sweeping machines to remove road dust/silt/debris caused due to construction/demolition activities) for better waste management, improved air quality and wellbeing.	BBMP SWM Manual, 2017	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Project-level C&D waste management plan b. Efficiency of collection of C&D waste	C&D waste removal	a. Improved service delivery b. Reduced emissions c. Improved public health d. Reduced air pollution	2025
	SWM 1.7	Create an open access platform and ensure every waste management cell uploads solid waste information in each ward at regular (quarterly) intervals, to ensure accountability and transparency.	BBMP road map	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Open access platform with ward-level solid waste generation data b. Efficiency in collection of SWM related c. Efficiency in redressal of customer complaints d. Quarterly waste performance reports.	Increased access to solid waste data	a. Increased accountability and transparency b. Improved service delivery	2025

	SWM 1.8	Create standard operating procedures (SOPs)/guidelines, and conduct regular (quarterly/half -yearly) trainings and workshops for *pourakarmikas* to ensure effective segregation of waste at sources (such as household, commercial, open spaces, streets, public/religious spaces, etc.)		P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. SOP for waste segregation b. No. of workshops/awareness campaigns conducted c. Extent of segregation d. Efficiency of collection	a. Increased segregation, segregated collection and transport to transfer stations b. Improved standard of living	a. Increased accountability and transparency b. Improved service delivery c. Social equity	2025
	SWM 1.9	Create dignity of labour for *pourakarmikas*. Introduce legal status and a licensing mechanism for ragpickers and waste workers to formalise them and provide support to ensure social equity, informal inclusion, and job security.		P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Recognition for *pourakarmikas*. b. List of formalised rag pickers	a. Increased segregation,. segregated collection, and transport to the transfer stations	a. Increased accountability and transparency b. Improved service delivery c. Social equity d. Inclusion of informal workers e. Job security f. Gender equity	2030

	SWM 1.10	Develop and maintain mustering centres in every ward (preferable at the transfer stations) across the city (including necessary facilities such as proper toilets, water, soap, or sanitiser) for pourakarmikas and rag pickers, to ensure better working conditions and improved public health.	BBMP SWM Manual, BBMP Bye-laws	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total no. of mustering centres in every ward b. Improved working conditions c. Extent of segregation d. Efficiency of collection	b. Improved standard of living	a. Improved public health, livelihood and well-being. b. Gender and social equity c. Job creation	2030
	SWM 1.11	With the support of self-help groups, conduct IEC campaigns and training sessions for women in slums/vulnerable communities/poor pockets to nudge social behaviour in relation to segregation and recycling/reusing waste, to improve waste segregation and create livelihoods	BBMP SWM Manual, BBMP Bye-laws, road map	P: BBMP-BSWML S: BBMP, Slum development board.	BBMP SWM Budget, Swachh Bharat Mission – IEC funds	a. Total no. of awareness drives conducted in each slum b. Total amount of dry waste recycled per ward c. Total no. of women involved in recycling waste	a. Increased segregation and awareness b. Volume of recycled materials per ward	a. Improved service delivery b. Increased job opportunities c. Improved livelihood, wellbeing and health e. Inclusion of informal workers f. Social equity g. Accountability h. Gender equity	2030
	SWM 1.12	Effectively implement the mandate of bulk waste generators to segregate and manage waste at source, identify non-compliance through inspection, and strictly implement penalties under the 'polluter pays'	BBMP SWM Manual, BBMP Bye-laws, road map	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total number/volume of bulk waste processed through centralised/empanelled service providers processing facilities b. Total amount of penalties collected	Increased segregation of waste and performance of bulk waste generators.	a. Increased accountability and transparency b. Improved service delivery c. Improved planning and governance d. Job creation	2025

		principle, to establish improved performance and service delivery.				from bulk waste generators c. Total no. of inspections on bulk waste generators per ward (quarterly/half yearly) d. Volume of bulk waste generation in each ward e. Updated database of vendors (in the portal for the Bulk Generator Network Service and Vendor Empanelment, under the KasaVilavaariI Sevadararu programme)			
	SWM 1.13	Conduct quarterly/half yearly workshops on SWM to promote global best practices in ward-level waste management cells and ensure participation and coordination of bulk waste generators, empanelled service providers, other vendors, NGOs, RWAs, self-help groups, etc., to create social cohesion.	Swachh Survekshan	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total no. of workshops conducted in each ward	Day to day updated SWM best practices across the globe.	a. Improved service delivery b. Increased social cohesion c. Increased job opportunities d. Improved technological advancement	2030

	SWM 1.14	Upgrade centralised wet waste processing units to fully functional capacity with optimal operational performance. Ensure that compost plants are fed only source-segregated organic waste to make sure heavy metals in the compost are within the limit, to get the maximum compost from processing.	BBMP SWM Manual, BBMP Bye-laws, Road map	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total amount of waste processed in centralised wet waste processing units.	Increased centralised wet waste processing	a. Increased technological advancement b. Improved service delivery c. Reduced emissions	2030
	SWM 1.15	Ensure accurate ward-wise mapping of locations of open burning of waste, intensify surveillance, and impose fines on defaulters.	Action aligned with air quality action-AQ 5.3 and NCAP b. Swachh Vayu Sarvekshan	P: BBMP-BSWML S: KSPCB	NCAP funds	a. % reduction in harmful and toxic gas emissions from waste b. % reduction in sites for open burning of waste c. Creation of litter-free ambassadors for each ward	a. Improve local health resilience b. Avoid exposure to unwanted odours	a. Achieve Swachh Bharat Abhiyan goals	2025
SWM *2:* *Increase resource recovery and circular economy by promoting decentralised waste management systems*									
Goal/Target: Recycling of paper & plastic waste to be >60% by 2030, >75% by 2040 & >90% by 2050.									
	SWM 2.1	Conduct IEC campaigns in collaboration with NGOs to nudge social behaviour, and conduct survey to promote decentralised composting and recycling materials in residential communities, *mandi*s, public and religious gatherings, parks and	Swachh Survekshan, Namma Kaasa Namma Javabdhari	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total no. of IEC campaigns conducted in every ward	Increased community engagement	a. Increased accountability, b. Social equity and inclusivity	2030

		gardens, through citizen participation to promote resource recovery and reduce waste disposal, and to ensure accountability and green initiatives.							
	SWM 2.2	Implement decentralised processing units in each ward (contingent on land and resource availability), and support communities/citizens to implement decentralised units and utilise compost with in the premises as fertiliser to increase in situ processing of waste, resource recovery and reduced emissions.	BBMP SWM Manual, BBMP Bye-laws, Namma Kaasa Namma Javabdhari	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total amount of wet waste processed in situ in each ward b. Extent of solid waste recovered	Increased decentralised wet waste processing	a. Increased accountability b. Reduced emissions from waste c. Improved public health d. Social inclusivity and equity e. Green jobs f. Inclusion of informal workers	2030
	SWM 2.3	Collaborate with food processing units/restaurants/delivery service units through empanelled service providers to take up initiatives and incentivise food waste reduction. Increase access to goods without plastic packaging by incentivising sellers.		P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Initiatives and incentives for food waste reduction b. Total amount of food and plastic usage per unit c. Extent of solid waste recovered	Volume of reduced food wastage		2030

	SWM 2.4	Increase dry waste collection centres and aggregators in all wards, and set up material recovery Ffacilities (MRF) and facilities for producing refuse-derived fuel (RDF)	BBMP SWM Manual, BBMP Bye-laws, road map	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	c. Total no. of MRF facilities d. Total amount of RDF	Increased organised dry waste facilities		2030
	SWM 2.5	Introduce a waste recovery platform (if possible, in the SWM cell in each ward) and increase visibility/market for businesses that sell recycled materials. Collaborate with waste management service providers/NGOs, etc., to buy/sell waste by-products. Conduct "waste purchase" drives to encourage citizens to judiciously segregate and sell the household waste that could be recycled, to create opportunities for green businesses and ensure resource recovery.	Solid Waste Management Rules, 2016	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total no. of waste recovery platforms b. Total number/type of green business in the city c. Total amount of recycled materials created from dry waste	Increased resource recovery	a. Sustainable finance b. Social inclusion c. Gender equity	2030
	SWM 2.6	Work with local materials collectors to recruit or retain recycling manufacturers. Build partnerships to analyse and develop a market for a	Solid Waste Management Rules, 2016	P: BBMP-BSWML S: KSPCB, MSME Development	BBMP SWM Budget, Swachh Bharat Mission –	a. Total number of recycling manufacturers b. Market for plastic waste recycling	Volume of recyclable textile waste	a. Sustainable finance b. Economic growth c. Social inclusion	

		recycled textiles industry (including meeting with stakeholders to determine and overcome barriers, developing standards and specifications, and committing public purchasing contracts to promote the industry.) Focus on materials with persistently low recycling rates.		Institute, Industries Department	Urban, MSME funds				
	SWM 2.7	Ensure that all public/private demolition projects follow C&D waste recycling/recovery practices.	C&D Waste Management Rules, 2016	P: BBMP-BSWML	BBMP SWM Budget, Swachh Bharat Mission – Urban	a. Total C&D waste recycling projects	C&D waste recovery	a. Increased accountability b. Reduced emissions	2030
	SWM 2.8	Replace all plastic packages with recyclable/recycled materials to reduce use of non-recyclables. Strictly ban the sale and use of single-use PVC items and flex banners, and replace with recyclable PE eco-flex.	Solid Waste Management Rules, 2016	P: BBMP-BSWML S: KSPCB, MSME Development Institute, Industries Department	BBMP SWM budget, Swachh Bharat Mission – Urban, MSME funds	a. Total amount of recyclable/recycled waste packaging in the city b. Ban on single-use PVC items	Recycled material packaging and banners	Reduced emissions	2030
	SWM 2.9	All manufacturers of non-recyclable materials must be mandated to pay high penalties under the 'polluter pays' principle, or take up carbon-neutral	Solid Waste Management Rules, 2016	P: BBMP-BSWML S: KSPCB, MSME Development	BBMP SWM budget, Swachh Bharat Mission –	a. Total number of trees planted/other carbon-neutral measures taken up by manufacturers	Implementation of 'polluter pays' principle	a. Accountability b. Reduced emissions	2030

		measures to increase carbon sequestration and create a path to shift towards recycled materials.		Institute, Industries Department	Urban, MSME funds	b. Total amount of penalty paid by non-recyclable material manufacturers.			
	SWM 2.10	Prepare a comprehensive plan and reporting framework for extended producers. This includes revised Extended Producer Responsibility (EPR) norms (Central) by empowering formal and informal waste pickers, Producers, (PIBOs) participation in DWCCs to manage and plan the destination of non-recyclable waste in collaboration with informal workers.	EPR guidelines	P: BBMP-BSWML S: KSPCB	BBMP SWM Budget, Swachh Bharat Mission – Urban, KSPCB , GoK	a. City level plan and reporting framework	Number of green jobs and materials produced	a. Inclusion of informal workers b. Green jobs c. Sustainable finance	2030
	SWM 2.11	Set up strict norms for new packaging and ensure that it is certified on the parameter of Life Cycle Assessment. Adopt an ordinance that restricts the use of expanded-polystyrene containers at restaurants and other establishments. Implement a green business programme that	Solid Waste Management Rules, 2016	P: BBMP-BSWML	BBMP SWM budget	a. Life cycle assessment report b. Ordinance restricting polystyrene containers	Opportunities for green business	a. Sustainable finance b. Green jobs c. Reduction of emissions	2035

		rewards local businesses for sustainability measures.							
	SWM 2.12	Mandate SEZs and industries to provide at least 5% of the total plot area for recycling facilities (they can be incentivised for promoting recycled materials, or they can have RDF plants and use the fuel produced in them).. Establish technical standards and guidelines for waste activities, and develop a permit system for industries concerned.	Karnataka State Policy for Special Economic Zones – 2009	P: GoK S: BBMP	Industries Department	a. Mandate, incentives tfor SEZs and industries for recycling facilities. b. Standards to manage waste in industries.	Reuse of recycled materials within the SEZs to promote circular economy	a. Sustainable finance b. Green jobs c. Reduction of emissions d. Accountability	2030
	SWM 2.13	Identify bulk consumers and inventorise e-waste, conduct monthly e-waste collection drives	E-Waste Management Rules	P: KSPCB S: BBMP	GoK	a. List of bulk e-waste consumers b. List of monthly e-waste collection drives c. Total no. of e-waste collection centres	Volume of e-waste generated	a. Improved service delivery b. Inclusion of informal workers	2030
	SWM 2.14	Re-evaluate the feasibility of waste-to-energy plants and of proposals in pipeline, for their operational and economic efficiency.	BBMP's on-going initiatives	P: BBMP-BSWML	BBMP's own funds			a. Reduced cost b. Reduced energy consumption	2025

	SWM 2.15	Develop a study to highlight the importance of including plastic recycling in the MSME policy.	MSME Policy 2022	P: MSME, GoI S: BBMP	MSME funding	a. A guideline/provision on bridging the gap between MSME policy and green entrepreneurship	New business opportunities in plastic recycling	a. Sustainable finance b. Economic growth	2035
SWM ***-3:*** *Implement scientific landfills with gas capture system and suitably repurpose closed landfills/dump sites*									
Goal/Target: Achieve about 25% gas capture from scientific landfill by 2030, 50% by 2040 & 75% by 2050.									
	SWM 3.1	Conduct land suitability analysis and develop a scientific landfill with gas capture system.	Solid Waste Management Rules, 2016	P: BBMP-BSWML	BBMP SWM budget	a. Extent of scientific disposal of solid waste b. Amount of gas capture	Scientific facility for mixed waste	a. Reduction of emissions b. Reduced soil and air pollution c. Reduced water contamination d. Accountability e. Improved public health	2025
	SWM 3.2	Collaborate with gas companies to establish scientific landfill implementation, and create sustainable financial incentives by providing landfill gas utilisation. (Gas capture in cylinders, as with LPG, can be considered.)		P: BBMP-BSWML S: Gas agencies	BBMP SWM budget, gas agencies (PPP funds)	a. Amount of gas recovered from landfill b. Amount of gas supplied as LPG c. Extent of cost recovery	Circular economy	a. Reduced emissions b. Social inclusion c. Accountability d. Sustainable finance	2025

	SWM 3.3	Create an action plan for managing legacy waste by adopting techniques such as windrows, biomining etc. (do pre/feasibility assessment)	Solid Waste Management Rules, 2016,	P: BBMP-BSWML	BBMP SWM budget	a. Amount of legacy waste bioremediation b. Amount of green cover increase	Increased green spaces	a. Reduction of emissions b. Reduced soil and air pollution c. Reduced water contamination d. Sustainable finance e. Green business	2030
	SWM 3.4	Ensure the closed landfills are turned into green spaces.	Solid Waste Management Rules, 2016,	P: BBMP-BSWML	BBMP SWM budget				
SWM ***-4:*** *Create inclusive and hazard-resilient SWM infrastructure and services*									
	SWM 4.1	Prepare a plan, coordinate and collaborate with various stakeholders to tackle disaster waste as a disaster response action, and to raise awareness about sustainable, environmentally friendly and culturally supportive techniques for disaster waste management. Allocate separate funds for climate and disaster-related purposes such as landfill fires.		P: BBMP-Disaster Management Cell	BBMP disaster funds	a. Disaster response action plan b. Funds for waste department to tackle disasters c. Total amount of waste generated/collected due to disaster	Reduced post-disaster waste accumulation	a. Resilience to climatic hazards b. Reduction of emissions c. Reduced soil and air pollution d. Reduced water contamination e. Job creation f. Improved health and livelihood	2035
	SWM 4.2	Build capacity for disaster waste management by providing education and training on disaster prevention and response to vulnerable communities, in		P: BBMP-Disaster Management Cell	BBMP disaster funds	a. Training modules, b. Dedicated staff c. List of vulnerable communities exposed to the externalities of post-disaster waste effects	Reduced post-disaster waste accumulation	a. Resilience to climatic hazards b. Reduction of emissions c. Reduced soil and air pollution	2035

		collaboration with relief agencies.						d. Reduced water contamination e. Job creation f. Improved health and livelihood	
	SWM 4.3	Ensure effective citizen grievance redressal through Swachh app		P: BBMP-Disaster Management Cell	BBMP disaster funds	Efficiency in redressal of customer complaints	Reduced post disaster waste accumulation	a. Resilience to climatic hazards b. Reduction of emissions c. Reduced soil and air pollution d. Reduced water contamination e. Job creation f. Improved health and livelihood	2035
	SWM 4.4	Focus on identification of existing capacities of post disaster waste management with special emphasis on Construction and Demolition (C&D) waste at every ward/zone of the city.				a. Amount of C&D waste due to disaster			
	SWM 4.5	During monsoons, continuously monitor storm water drains and remove waste dumps to ensure stormwater runoff and avoid floods.				a. Type/location of drains exposed to solid waste dumping			

4 Air quality

Sectoral action tracks

No.	Action track
AQ-1	Prevent air pollution at source through comprehensive strategies across sectors informed by evidence.
AQ-2	Reduce/maintain ambient air pollution levels to prescribed standards and minimise air pollution impacts through suitable local planning, urban design, and greening efforts.
AQ-3	Ensure implementation of WHO indoor air quality standards and guidelines in all public buildings by 2030, and all other buildings by 2040.
AQ-4	Develop a city-level comprehensive health action plan for tackling health risks posed by short- and long-term exposures to air pollution.
AQ-5	Create/improve infrastructure and capacities to develop a robust evidence-based and results-oriented AQ management paradigm through monitoring, evaluation, feedback loop, and knowledge creation and dissemination to encourage behavioural shifts.

Track-wise actions

Priority	S.No	Actions	Aligned with (ongoing initiatives/ other actions)	Responsible Agency Primary (P) Secondary (S)	Potential Source of funding	Output	Outcome	Co-benefit	Timeline *(Targeted year of completion of action)*
AQ- 1: *Prevent air pollution at source through comprehensive strategies across sectors, informed by evidence*									
Goal/Target: To achieve 40% reduction in PM10 concentration and 30% reduction in PM2.5 concentration by 2026 from 2017-18 levels as per revised targets prescribed by NCAP									
	AQ 1.1.	Ensure universal access and adoption of clean cooking fuel as primary fuel in the city through Pradhan Mantri Ujjwala Yojana (PMUY) and other similar programmes/schemes.	a. Pradhan Mantri Ujjwala Yojana	P: Energy Department-GoK S: Food and Civil Supplies Department	PMUY financial assistance	a. % increase in LPG/PNG as primary fuel b. % reduction in solid fuels	a. Reduction in indoor air pollution and health risks	a. Improve residents' lifestyle b. Empower women	2030
	AQ 1.2	Incentivise voluntary fleet modernisation adhering to improved emission standards and facilitate scrapping of old vehicles in line with the old-vehicle scrappage programme while encouraging a circular economy market around old vehicle scrappage.	a. Voluntary Vehicle Fleet Modernisation Program (VVMP)	P: Transport Department S: RTO	State government concession on motor vehicle tax	a. % increase in the modern vehicular fleet b. % reduction in tailpipe emissions	Reduction in air pollution	Reduction in GHG emissions	2035
	AQ 1.3	Enforce stringent regulations and operating protocols for vehicles carrying construction debris (such as use of appropriate cover, avoiding overload, etc.)	a. BBMP Building Bye-Laws - Guidelines For Construction And	P: BBMP	a. GoK budget b. NCAP funds (9th Finance commission)	% reduction in re-suspension of road dust - PM2.5 and PM10	Improved ambient air quality	Improvement in pedestrian health	2030

			Demolition Waste Management						
	AQ 1.4	Mandate annual training for city officials and engineers on the concept and ideation of NCAP using the Clean Air Action Plan (Planning and Implementation) manual developed by the Climate Centre for Cities, NIUA.	NCAP	P: BBMP S: All agencies	a. GoK Budget b. NCAP funds (IX Finance)	a. Number of trainings b. Number of participating staff and departments	a. Improve multi-stakeholder coordination b. Achieve attainment city status under NCAP		2025
	AQ 1.5	Mandate usage of gas-fuelled backup electricity generators and retrofit existing diesel/fossil fuel generators into gas generators	a. NCAP b. Swachh Vayu Sarvekshan	P: KSPCB S: BBMP	a. GoK budget b. NCAP funds (IX Finance)	a. % reduction in diesel generators b. % of retrofits in the city	a. Improved ambient air quality	a. Improved building occupancy comfort b. Reduction in GHG emissions	2030
	AQ 1.6	Conduct mandatory annual mapping of the city's polluting activities in the city to prioritise targeted sector-specific air pollution mitigation measures.	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP, KSPCB S: All agencies	a. NCAP funds (IX Finance)	a. Identification micro-level hot spots b. % improvement in data collection and dissemination	a. Improved ambient air quality b. Assured improvement of public health c. Mapping of most vulnerable people and zones	Improvement in vulnerable people's health	2025
	AQ 1.7	Encourage promotional activities for the adoption of electric/induction cooking	a. Go Electric Campaign	P: BEE S: KREDL	a. GoK funds	a. % increase in the number of users of electric	a. Improvement in residents'	a. Better indoor air quality	2027

		stoves by providing financial incentives to sellers				cooking stoves b. % reduction use of fossil fuel for cooking	lifestyle b. Improved health resilience of residents		
	AQ 1.8	Develop low-emission zone (LEZ), ultra-low emission zone (ULEZ), or zero-emission areas in the identified hotspots and restrict vehicle movement to limit tailpipe emissions, especially by heavy vehicles.	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB, BTP	a. NCAP funds (IX Finance)	a. number of reductions in hot spots b. % reduction in ambient air pollutant concentrations	a. Improved ambient air quality b. Improved public health c. Mapping of most vulnerable people and zones		2030
	AQ 1.9	Reduce transport sector emissions by promoting the use of Public Transport and Non-Motorised Transport.	Transport sector action track no. 3	P: BBMP S: Transport Department, BMRCL, BMTC	a. GoK funds	a. % increase in usage of public transport b. % reduction in ambient air pollutant concentration levels	a. Improved ambient air quality b. Improved public health		2025
AQ-2*: Reduce/maintain ambient air pollution levels to prescribed standards and minimize air pollution impacts through suitable local planning, urban design, and greening efforts*									
Goal/Target: To achieve 40% reduction in PM10 concentration and 30% reduction in PM2.5 concentration by 2026 from 2017-18 levels as per revised targets prescribed by NCAP									
	AQ 2.1	Ensure timely implementation of the proposed micro action plan for BBMP jurisdiction under the 15th Finance Commission grant by creating adequate capacity	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: All allocated agencies	a. NCAP funds (IX Finance)	a. % implementation and progress of micro action plans b. % reduction in ambient air pollution levels	a. Improved ambient air quality b. Progress in NCAP goals	a. Better public health	2025

		partnerships and institutional coordination							
	AQ 2.2	Enforce mandatory installation of water sprinklers/spray, shielding, netting, covers/hoarding for aggregate and sand storage to minimise dust pollution caused by construction or demolition works, and installation of a wash bay for cleaning vehicles before they leave the site. All wash bays must have silt traps and use recycled water.	a. NCAP b. Swachh Vayu Sarvekshan c. BBMP Building Bye-Laws - Guidelines For Construction And Demolition Waste Management	P: BBMP S: KSPCB	a. NCAP funds (IX Finance)	% reduction in re-suspension of road dust - PM2.5 and PM10	a. Improved ambient air quality b. Improvement in residents' health		2030
	AQ 2.3	Improve existing ITS systems to adopt advanced technology including AI to better synchronise traffic flows and to reduce idling time of vehicles, which contributes to air pollution	a. Transport sector action track 2	P: Transport Department S: BTP	a. GoK funds	a. % reduction in traffic congestion zones b. % reduction in average vehicle idling time	Increase fuel savings	GHG emission reduction	2030
	AQ 2.4	Create policy instruments and institutional mechanisms for regional airshed management around Bengaluru to address aspects of trans-boundary air pollution	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: All allocated agencies	a. NCAP funds (IX Finance)	a. Approval of policy and airshed management b. Number of departments in the inter-region coordination cell	Improve emission data repository		2025

	AQ 2.5	Include actions aiming at carbon capture from the environment in the city's Clean Air Action Plan	a. Carbon Capture Utilisation and Storage (CCUS)	P: Energy Department - GoK, S: KREDL	GoK funds	% of actions proposed on carbon capture	Increase in number of projects on carbon capture	GHG emission reduction	2035
	AQ 2.6	Promote and implement urban gardens and vegetation cover in the city through plantation drives (NBS)	a. Aligned with urban planning and greening-sector action tracks	P: BBMP S: All allocated agencies	GoK funds	% reduction in ambient air pollutant concentrations	Better public health,	Increased resilience	2027
AQ-3: *Ensure WHO indoor air quality standards and implementation of guidelines in all public buildings by 2030 and all other buildings by 2040* Goal/Target: 30% of commercial and institutional buildings complying WHO Indoor air quality standards and guidelines by 2030									
	AQ 3.1	Provide incentives/subsidies to low-income groups to procure air purifiers and exhaust fans to adopt better ventilation within their dwelling unit	a. WHO indoor air quality guidelines	P: BEE, BBMP S: KREDL, BESCOM	a. GoK funds	a. % people utilising the subsidy	a. Improve residents' lifestyle b. Empower women	a. Improved building occupants' comfort	2030
	AQ 3.2	Conduct sensitisation workshops on benefits of indoor plants for improving indoor air quality. This could be supported with activities such as providing free saplings to low-income groups.	a. WHO indoor air quality guidelines	P: BBMP S: KSPCB	NCAP funds (IX Finance)	Number of workshops conducted	a. Improve residents' lifestyle b. Empower women	Improved building occupants' comfort	2025
	AQ 3.3	Mandate the use of High Efficiency Particulate Air (HEPA) filters in vacuum cleaners, air purifiers, and air conditioners.	a. WHO indoor air quality guidelines	P: BEE S: KREDL	GoK funds	% increase in efficiency of particulate matter absorption	Reduce residents' health risk due to particulate matter, allergens,	Improved comfort of building occupants	2025

							pollen, and bacteria		
	AQ 3.4	Conduct regular indoor air quality assessments of all public buildings, prioritising schools and hospitals, by 2030.	WHO indoor air quality guidelines	P: BBMP S: KSPCB	NCAP funds (IX Finance)	a. % buildings posing health risks b. % buildings compliant with ECBC	Improve residents' lifestyle	Improved comfort of building occupants	2030
	AQ 3.5	Offer incentives and subsidies to all stakeholders in the value chain (consumers, manufacturers, distributors, etc.) to ensure the uptake of non-VOC materials.	a. Aligned with action no. E&B 2.7 b. WHO indoor air quality guidelines	P: BBMP S: KREDL	NCAP funds (IX Finance)	a. % buildings adopting water-based paints b. % buildings using VOC-free materials (for furniture, walls, railings etc)	Reduce residents' health risk due to particulate matter, allergens, pollen, and bacteria	Improved comfort of building occupants	2030
AQ-4: *Develop a city-level comprehensive Health Action Plan for tackling health risks posed by short-term and long-term exposure to air pollution.*									
Goal/Target: Preparation of a roadmap for a comprehensive health action plan tackling risks due to air pollution for 2025-2035									
	AQ 4.1	Organise annual free health check-ups at ward and city levels in collaboration with BBMP and the media to raise awareness about the health impacts of exposure to a high concentration of air pollutants.	a. NCAP b. Swachh Vayu Sarvekshan	P: Commissionerate of Health and Family Welfare S: BBMP Health Department	a. Municipal corporation annual budget b. NCAP funds (IX Finance)	a. Number of free health check-ups b. % reduction in health impacts c. % reduction in air pollutant concentrations	a. Improve local health resilience b. Improve ground-level data collection and dissemination	Improved employee productivity and local employment	2025
	AQ 4.2	Create a team of health and non-health stakeholders to evaluate existing health systems and services for the prevention and control of	a. NCAP b. Swachh Vayu Sarvekshan	P: Commissionerate of health and family welfare	a. Municipal corporation annual budget b. NCAP	a. Number of health facilities available for air pollution-related health issues	Improve local health resilience	Improve access to hospitals	2025

		health impacts due to air pollution.		S: BBMP Health Department	funds (IX Finance)	b. Number of tests available to diagnose health issues caused by air pollution			
	AQ 4.3	Conduct training sessions for ground-level health workers, such as ASHA workers, to deal with air pollution-related health concerns and risks. Identify more such volunteers at the local level and train them.	a. NCAP b. Swachh Vayu Sarvekshan	P: Commissionerate of Health and Family Welfare S: BBMP Health Department	a. Municipal corporation annual budget b. NCAP funds (IX Finance)	a. Number of workshops and trainings b. Number of trained health workers	Improve local health resilience management system	Improve local employment in health sector	2027
	AQ 4.4	Raise awareness about impacts of exposure to air pollution amongst street vendors and other informal workers continuously engaged in activities in hotspot zones	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: BTP	Municipal corporation annual budget	a. % reduction in exposure to air pollutants b. % reduction in public gatherings in hotspot zones	Improve local health resilience		2025
	AQ 4.5	Develop a mechanism for data collection on influenza-like illness (ILI) and severe acute respiratory infections (SARI) cases and related hospital admission data on a daily basis from to monitor respiratory illness trends due to poor air quality.	a. NCAP b. Swachh Vayu Sarvekshan	P: Commissionerate of Health and Family Welfare S: BBMP Health Department	a. Municipal corporation annual budget b. NCAP funds (IX Finance)	Approved data collection management system	Improve local health resilience management system	Improve local employment in health sector	2025

AQ-5: *Create/improve infrastructure and capacities to develop a robust evidence-based and result-oriented AQ management paradigm through monitoring, evaluation, feedback loop, and knowledge creation and dissemination to encourage behavioural shifts*									
Goal/Target: To procure 13 new CAAQMS and transition the existing manual station to CAAQMS systems by 2035									
	AQ 5.1	Procure nowcasting or forecasting systems and integrate them with CAAQMS to predict accurate air pollution levels at ward/zone levels. This will help the public take necessary precautions and avoid unhealthy exposure.	a. NCAP b. Swachh Vayu Sarvekshan	P: KSPCB S: BBMP	NCAP funds	% CAAQMS systems integrated with nowcast or forecast systems	a. Improve local health resilience	a. Weather alerts can be provided too	2030
	AQ 5.2	Ensure the monitoring systems are well calibrated and maintained to achieve uninterrupted data collection from monitoring systems.	a. NCAP b. Swachh Vayu Sarvekshan	P: KSPCB	NCAP funds	a. % data gaps in CAAQMS systems b. % background noise in CAAQMS systems	a. Strengthen evidence-based decision-making b. Accurate data dissemination		2025
	AQ 5.3	Ensure accurate ward-wise mapping of locations of open burning of waste, intensify surveillance, and impose fines on defaulters.	a. Action aligned with SWM action-SWM1.15 and NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB	NCAP funds	a. % reduction in harmful gas emissions from waste b. % reduction in open waste burning sites c. Creation of litter-free ambassadors for each ward	a. Improve local health resilience b. Avoid exposure to unwanted odours	a. Achieve Swachh Bharat Abhiyan goals	2025

	AQ 5.4	Strengthen the monitoring network by adding an adequate number of reference grade CAAQMS and gradually replacing existing manual monitoring stations with these.	a. NCAP b. Swachh Vayu Sarvekshan	P: KSPCB S: BBMP	NCAP Funds	a. % increase in reference monitoring stations b. Determination of the number of stations required	a. Strengthen evidence-based decision-making b. Better triangulation of hotspots d. Improve airshed monitoring network	a. Achieve Swachh Bharat Abhiyan goals	2030
	AQ 5.5	Promote private sector players participation in air quality monitoring ecosystem by providing incentives	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB	NCAP funds, PPP funds	Approved promotional activity	Number of private players in AQM network		2030
	AQ 5.6	Activate citizens' groups to monitor and report air pollution-related activities in their local wards/streets at regular intervals. This can be done through programmes such as “self-monitoring”.	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB	NCAP funds, PPP funds	a. % increase in self-monitoring b. % reduction in open waste burning	Create a micro-level monitoring network	Achieve Swachh Bharat Abhiyan goals	2027
	AQ 5.7	Institutionalise annual auditing process to evaluate the performance of implemented NCAP measures. Based on the assessment, underperforming initiatives	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB	NCAP funds	a. % performance intervention audited b. % improvement in strategies with evidence-based approach	a. Strengthen evidence-based decision-making b. Discontinue funding for the actions that	Achieve Swachh Bharat Abhiyan goals	2024

		can be replaced with new or improved versions.					are underperforming		
	AQ 5.8	Create awareness about "Sick Building Syndrome" (SBS) through targeted IEC campaign for all, and prioritise vulnerable populations (children, women, elderly and marginalised groups).	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KREDL	NCAP funds	% of people experiencing inadequate to zero indoor comfort	Increase in awareness of indoor air quality and thermal comfort	Increase in ECBC- and ENS-compliant buildings	2035
	AQ 5.9	Awareness generation on ambient air quality, through targeted IEC campaigns for vulnerable populations (children, women, elderly and marginalised groups).	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB	NCAP funds	a. Number of awareness programmes conducted b. Creation of suitable public advocacy and awareness materials	Knowledge dissemination on Air Quality Index (AQI) and colour codes	Achieve Swachh Bharat Abhiyan goals	2025
	AQ 5.10	Develop an open access platform to provide timely issue of alerts/warnings on health risk factors related to the AQI and weather conditions, obtained from IMD / Pollution Control Boards.	a. NCAP b. Swachh Vayu Sarvekshan	P: BBMP S: KSPCB	NCAP funds	a. % increase in outreach activities for vulnerable groups	a. Improve local health resilience b. Avoid exposure to spikes in air pollution concentration	Achieve Swachh Bharat Abhiyan goals	2030

5 Water, wastewater, and stormwater management

Sectoral action tracks

No.	Action tracks
W, WW, SW- 1	Enhance access to safe and reliable water and sanitation services for all
W, WW, SW- 2	Ensure water security by conserving water resources, recycling and safe reuse of wastewater, and diversifying the city's sources of water
W, WW, SW- 3	Restore and enhance sponge spaces to increase groundwater recharge and decrease stormwater runoff through green infrastructure technologies
W, WW, SW- 4	Adopt improved technologies and nature-based solutions for efficient and equitable wastewater treatment that are aligned with the city's mitigation goals

Track-wise actions

Priority	S.No	Actions	Aligned with (ongoing initiatives/other actions)	Responsible Agency Primary (P) Secondary (S)	Potential Source of funding	Output	Outcome	Co-benefit	Timeline *(Targeted year of completion of action)*
W,WW,SW- 1: *Enhance access to safe and reliable water and sanitation services for all*									
Goal/Target: 100% households to have access to water and sanitation infrastructure and services, which are a combination of networked and decentralised systems.									
	W,WW,SW - 1.1.	Ensure supply of safe water across the city (including 110 villages) by providing piped water supply, ward/community level water storage facilities, and stand posts/public taps located within a 100-metre radius, so that the vulnerable wards/slums/poor areas have access to reliable water and improved services.	BWSSB vision documents. Karnataka State Water Policy, BWSSB Act, SDG-6	P: BWSSB S: BBMP Slum Development Board	GoK, Beneficiary Capital Contribution (BCC), Greater Bangalore Water And Sanitation Project (GBWASP) and AMRUT (Atal Mission for Rejuvenation and Urban Transformation).	a. Water supply coverage (% population covered) b. Total number of standposts/public taps in vulnerable communities c. Total number of slums/households dependent on non-piped water facilities.	a. Increased supply of water across the city, including vulnerable communities. b. Reduced transportation of water from far-off water sources c. Reduced dependency on illegal groundwater extraction.	a. Improved health, livelihood and well-being. b. Increased water and energy efficiency. c. Gender equality d. Improved conditions of poor communities e. Reduced use of polluted water. f. Equitable and improved supply of water. g. Reduced GHG emissions from	2025

								transport. h. Increased job opportunities	
	W,WW,SW - 1.2	Publish ward-level data in open access platform on actual consumption of public supply/piped water across the city by different customer groups to plan for better equitable supply.		P: BWSSB	GoK, own funds of BWSSB	a. Ward/community level water consumption data b. Ward/community level data for different water consumers c. Total number of households with piped water supply d. Total number of households with other decentralised systems	a. Actual water consumption data of the city based on various consumer groups/localities.	a. Improved health, livelihood and well-being. b. Increased water and energy efficiency. c. Gender equality d. Improved conditions of poor communities e. Reduced use of polluted water f. Equitable and improved water supply g. Reduced GHG emissions from transport h. Increased job opportunities	2025
	W,WW,SW - 1.3	Based on the available data on actual water consumption, revisit service benchmarks for the city and distribute piped water as per actual consumption to improve equitable access to water.		P: BWSSB	GoK, own funds of BWSSB				

	W,WW,SW - 1.4	Collect and publish ward-level data on the actual requirement for public toilets across the city to eradicate open defecation and improve hygiene.	Swachh Bharat Mission, SDG-6	P: BBMP-Slum Development Board	Swachh Bharat Mission, Shubhra Bengaluru Scheme	a. Ward-level data on coverage of toilets b. Total number of public toilets required to be constructed in the city. c. Total number of households connected to sewage system	a. Increased access to sanitation services b. Gender-neutral sanitation facilities	a. Improved health, livelihood and wellbeing b. Improved sanitation services c. Improved conditions of poor communities d. Increased job opportunities e. Reduced contamination and air pollution	
	W,WW,SW - 1.5	Provide safe sanitation services to all households construct public/community toilets in urban poor pockets/slums/public places as per universal accessibility standards, including gender-neutral toilets, with adequate sewage treatment and management facilities to ensure improved services and safe access for all vulnerable groups.	Swachh Bharat Mission, SDG-6	P: BBMP-Slum Development Board	Swachh Bharat Mission, Shubhra Bengaluru Scheme	a. Total sewerage network in the city b. Total number of public/community toilets constructed across the city that are accessible for vulnerable communities.	a. Increased access to sanitation services b. Gender neutral sanitation facilities	a. Improved health, livelihood and wellbeing b. Improved sanitation services c. Improved conditions of poor communities d. Increased job opportunities e. Reduced contamination	2025

								and air pollution	
W,WW,SW- -2: *Ensure water security by conserving water resources, recycling and safe reuse of wastewater, and diversifying the city's sources of water*									
Goal/Target: By 2050, aim to reduce non-revenue water to 15%. Achieve reuse of treated wastewater to a minimum of 50% by 2030 and 90% by 2050.									
	W,WW,SW **-** 2.1	Implement the concept of District Meter Areas (DMAs) in all eight zones (in line with the pilot conducted in 135 sq. km. in the city) by dividing water distribution areas into smaller units (based on availability of funds) to facilitate equitable distribution, better monitoring, reduced T&D loss and non-revenue water (NRW, such as unbilled, or unmetered	BWSSB vision document, Bengaluru Water Supply (Amendment) Regulation, 2020	P: BWSSB	GoK, BWSSB, GBWASP, AMRUT	a. Total metered connections b. Total illegal connections c. Total unbilled connections d. Total unmetered connections e. Data on water distribution units	a. Reduced T&D loss b. Reduced NRW loss c. Increased equitable distribution d. Per capita supply reduction	a. Increased water and energy efficiency b. Reduced water loss and increased water conservation	2030

		connections, illegal connections, physical water leakages, etc.)							
	W,WW,SW - 2.2	Conduct regular audits for water infrastructure by applying advanced technologies to identify the need for upgrades, refurbishment, and replacement, to minimise leakage and contamination during disasters such as floods.	BWSSB vision document, Bengaluru Water Supply (Amendment) Regulation, 2020	P: BWSSB	GoK, BWSSB, GBWASP, AMRUT	a. Water infrastructure audit b. Total infrastructure that needs to be upgraded	a. Reduced leakages b. Improved water infrastructure	a. Reduced water contamination b. Increased job opportunities c. Improved climate-resilient infrastructure	2025
	W,WW,SW - 2.3	Conduct regular energy audits through a participatory approach, to monitor energy intensity of water supply network, and to minimise energy used utilisation for water supply	Energy audit report – BESCOM	P: BWSSB, BESCOM	BESCOM funds	a. Energy audit of water b. Total expenses on pumping and transporting water from Cauvery to the city.	a. Reduced energy usage for pumping, treatment and supply	a. Reduced energy usage and GHG emissions	2040
	W,WW,SW - 2.4	In continuation of District Meter Areas (DMAs), make an incremental plan for creating a smart water grid by learning from global best practices, to ensure better network resilience.	Bengaluru Water Supply (Amendment) Regulation, 2020	P: BWSSB	GoK, BWSSB-GBWASP, AMRUT	a. Plan to implement advanced smart water grid for efficient water supply network. b. Complete database on water pressure, availability, contamination, and	a. Improved water distribution and management b. Lower maintenance of distribution system	a. Improved water quality b. Improved climate-resilient infrastructure	2040

						defects/damages in the water distribution system			

	W,WW,SW - 2.5	Get approval from the government to implement a tariff structure for different consumer segments to reflect the true cost of water from different water sources (differential tariff, volumetric tariff, etc.) to achieve socially equitable and financially sustainable utility. For instance, this could mean pricing instruments such as increasing block-rate structures and charges for excess use, so that users pay more for higher levels of consumption, or differentiated tariffs for potable and non-potable water to limit freshwater use for non-potable purposes.	Bengaluru Water Supply (Amendment) Regulation, 2020	P: BWSSB	BWSSB-GBWASP	a. Differential tariff structure b. Total potable and non-potable water consumption data	a. Improved true cost of water. b. Socially equitable and financially sustainable utility. c. Enhanced water access d. Reduced fresh water use for non-potable purposes	a. Improved accountability, and transparency. b. Improved water efficiency c. Reduced GHG emissions from pumping excess fresh water for all types of uses.	2025

	W,WW,SW **-** 2.6	Encourage/create incentive mechanisms within the water tariff system for greater uptake of water and energy-efficient appliances and fixtures in homes, institutions, etc., to ensure judicious water and energy consumption.	BWSSB vision document, Bengaluru Water Supply (Amendment) Regulation, 2020	P: BWSSB S: BESCOM	BWSSB-GBWASP	a. Increase in water- and energy-efficient appliances and fixtures	a. Reduced indoor potable water use b. Reduced water consumption to save energy c. Improved environmental well-being	a. Reduced energy use b. Reduced water consumption	2025
	W,WW,SW **-** 2.7	Sensitise consumers and water technicians (plumbers) regarding water conservation and energy-efficient practices by conducting regular (quarterly/half yearly) IEC campaigns at the ward level in partnership with NGOs, civil society platforms, citizens' forums, academic institutions, etc. (Leverage existing outreach facilities such as RWH theme park, Jayanagar)	BWSSB vision document, Karnataka State Water Policy	P: BWSSB	Jal Jeevan Mission IEC funds	a. Total no. of IEC campaigns conducted b. List/Database of plumbers across the city	Increased awareness on water and energy efficiency and conservation	Increased water conservation through judicious use of water	2025

	W,WW,SW - 2.8	Mandate regular and targeted training programmes (quarterly/half yearly) for officials/engineers/ground workers in water utility and other relevant government departments, on water conservation devices and practices, such as usage of control valves for water pumping to maintain flow pressure in the network to reduce losses and avoid unnecessary energy consumption.	BWSSB vision document, Karnataka State water Policy	P: BWSSB	Jal Jeevan Mission IEC funds	Database on total number of trainings/works hops conducted			
	W,WW,SW - 2.9	Prepare and enforce adequate regulatory instruments to control and monitor groundwater extraction and the private water tanker business, to ensure sustainable use of groundwater, and avoid over-exploitation of groundwater resources.	Karnataka State Water Policy, Karnataka Ground Water (Regulation and Control of Development and Management), 2011	P: BBMP, KGWA S: BWSSB, RTO, BESCOM	BBMP, RTO's own funds (Bhoojala Yojana-BWSSB)	Regulatory instrument to control groundwater extraction: a. Total number of trade licensed water tanker operators.b. Total number of permitted domestic borewellsc. Condition of the tankers d. Total	a. Reduced illegal tanker operators b. Reduced illegal borewells c. Database of households dependent on tankers	a. Increased water conservation b. Judicious and safe use of alternative water sources c. Improved quality of water supply d. Improved livelihood and job opportunities	2025

						extraction of water from wells e. Travelling location and distance of tankers. f. Total number of metered commercial borewells			
	W,WW,SW - 2.10	Create aquifer plan that includes participatory aquifer mapping of groundwater levels across the city, and publish it on the open access platform, to ascertain water resource availability and to identify actions to recharge and replenish groundwater sources	Karnataka State Water Policy, Karnataka Ground Water (Regulation and Control of Development and Management), 2012	P: KGWA S: BWSSB, CGWB, KSPCB, BBMP	PPP	Aquifer plan with maps and water levels: a. Database on total number of borewells, depth, diameter, rate of pumping, etc. b. Database on groundwater levels across the city. c. Total current discharge rate, quantity of water extracted per day of the borewell.	a. Improved recharge and replenishment of groundwater sources b. Improved conservation of water	a. Sustainable alternative water sources b. Improved groundwater quality and quantity c. Reduced water pollution d. Increased energy efficiency e. Increased job opportunities and improved livelihood and wellbeing f. Reduced stormwater runoff	2030
	W,WW,SW - 2.11	Integrate renewable groundwater sources as a buffer source to increase fresh water storage and replenish the groundwater aquifer.	Karnataka State Water Policy, Karnataka Ground Water (Regulation and Control of Development and	P: KGWA S: BWSSB, CGWB, KSPCB, BBMP	PPP				

			Management), 2013						
	W,WW,SW **-** 2.12	Create a plan for constructing groundwater recharge pits across the city to increase groundwater recharge and reduce stormwater runoff to expand fresh water sources	Karnataka State Water Policy, Karnataka Ground Water (Regulation and Control of Development and Management), 2014	P: KGWA S: BWSSB, CGWB, KSPCB, BBMP	PPP				
	W,WW,SW **-** 2.13	Rejuvenate existing groundwater wells by involving communities and using local traditional knowledge to enhance access to water, increase groundwater recharge, and create livelihood opportunities.	Karnataka State Water Policy, Karnataka Ground Water (Regulation and Control of Development and Management), 2015	P: KGWA S: BWSSB, CGWB, KSPCB, BBMP	PPP	Rejuvenation of groundwater wells a. Total number and location of borewells to be rejuvenated b. Database on local communities and traditional techniques to rejuvenate groundwater wells.	Improved groundwater wells condition and recharge potential	a. Improved livelihood and increased job opportunities. b. Increased water storage and availability c. Improved water quality	2030

	W,WW,SW **-** 2.14	Rejuvenate and revive the TG Halli reservoir to reduce dependency on other far-off sources and augment the city's water supply (subject to the release of 1.2 TMC of allocated water)	BWSSB vision document	P: BWSSB	GoK, BWSSB-GBWASP, AMRUT	Amount of water that can be supplied through TG Halli reservoir.	Diverse water sources	a. Reduced energy utilisation for pumping water from Cauvery b. Reduced transport of water	2035
	W,WW,SW **-** 2.15	Ensure strict enforcement of rainwater harvesting at the plot/community level across the city, to increase groundwater recharge and improve water and energy efficiency by reducing dependency on Cauvery piped water supply, pumping, water transportation and unauthorised/illegal water extraction.	Bengaluru Water Supply and Sewerage (Rainwater harvesting) (Amendment) Regulation 2019, BBMP Building Bye-laws 2003, and BWSSB Act 2009 and Regulations 2015	P: BBMP S: BWSSB	BBMP budget	Citywide total number of rainwater harvesting structures, location and capacity	Increased groundwater recharge, and reduced dependency on municipal water supply	a. Reduced stormwater runoff b. Increased water storage c. Improved water quality d. Increased water and energy efficiency e. Job creation and livelihood opportunities	2025

	W,WW,SW **-** 2.16	Integrate multiple funding streams to implement extensive rainwater harvesting (RWH), lake rejuvenation projects, etc., through a participatory approach, to promote water and energy conservation, and water security.	Bengaluru Water Supply and Sewerage (Rainwater harvesting) (Amendment) Regulation 2019, BBMP Building Bye-laws 2003, and BWSSB Act 2009, and Regulations 2016, Karnataka Lake Conservation and Development Authority (KLCDA) Act 2014	P: BBMP-Karnataka Tank Conservation and Development Authority (KTCDA), Forest Department S: BWSSB, KSPCB	BBMP budget	a. Increased investment in lake rejuvenation and RWH b. List and map of all lakes in the city and their condition	Increased lake rejuvenation and RWH projects/proposals, and awareness about water security	a. Improved water quality and storage b. Improved biodiversity c. Access to urban commons d. Enhanced livelihood e. Job creation f. Improved health and well being	2030

	W,WW,SW - 2.17	Implement participatory and inclusive lake rejuvenation projects by involving the local community in cleaning and maintaining water bodies to secure local watershed with recharge, improved water quality, protect biodiversity, improve access to urban commons, and enhance livelihood opportunities.	Bengaluru Water Supply and Sewerage (Rainwater Harvesting) (Amendment) Regulation 2019, BBMP Building Bye-laws 2003 and BWSSB Act 2009 and Regulations 2016, Karnataka Lake Conservation and Development Authority (KLCDA) ACT 2014	P: BBMP-Karnataka Tank Conservation and Development Authority (KTCDA), Forest Department S: BWSSB, KSPCB	BBMP budget	a. Increased investment in lake rejuvenation and RWH b. List and map of all lakes in the city and their condition	Increased lake rejuvenation and RWH projects/proposals, and awareness about water security	a. Increased water quality and storage b. Improved biodiversity c. Access to urban commons d. Enhanced livelihood e. Job creation f. Improved health and well being	2030
	W,WW,SW - 2.18	Prohibit disposal of phosphate-containing fertilisers, detergents and sewage into water bodies, and ensure the recovery of phosphorus from wastewater, to reduce dependency on chemical fertilisers to improve the quality of water bodies.	Karnataka Lake Conservation and Development Authority (KLCDA) ACT 2014, Zero Liquid	P: KSPCB S: BBMP, BWSSB	GoK	Standards on prohibition on disposal of chemicals in water bodies	Decreased discharge	a. Improved water quality b. Minimal wastewater discharge c. Maximumresource recovery	2025

			Discharge (ZLD) policy						
	W,WW,SW - 2.19	Build awareness amongst public and private stakeholders on ZLD national-level framework for reuse of treated wastewater	Karnataka Lake Conservation and Development Authority (KLCDA) ACT 2014, ZLD policy	P: BWSSB, Forest Department, KSPCB S: BBMP	GoK	Total no. of awareness programmes conducted	Increased awareness about reuse potential of treated wastewater		2025
	W,WW,SW - 2.20	Enable appropriate market mechanisms/business models to connect bulk wastewater generators that are registered in an open access database, with large consumers to ensure adherence to ZLD policy. (ZLD policy should allow sale of treated wastewater to bulk consumers for non-potable use)	Karnataka Lake Conservation and Development Authority (KLCDA) ACT 2014, ZLD policy	P: KSPCB S: BWSSB	GoK	Market/platform for treated water sale a. Database on bulk wastewater generators b. Different types of business models to improve wastewater by-products c. Increased reuse of treated water	Improved usage of wastewater by-products	a. Increased alternate water sources b. Reduced water pollution c. Increased access to water	2030

	W,WW,SW - 2.21	Pilot-test advanced water reclamation systems such as NE Water, Singapore, for the city to ensure recycling and safe reuse of wastewater	BWSSB vision document	P: BWSSB	BWSSB's own funds	Advanced water reclamation systems in the city	Improvedrecycling and reuse of treated water	a. Increased reuse of water b. Decreased water pollution c. Improved health and safety d. Reduced water scarcity	2040
	W,WW,SW - 2.22	Enhance uptake of dual piping/plumbing system at the household level to increase reuse of wastewater within the premises, to reduce dependency on fresh water for non-potable purposes.	BWSSB vision document	P: BWSSB	BWSSB's own funds	Database on total dual-piping domestic connections in the city	Increased recycling and reuse of treated wastewater		2030
	W,WW,SW - 2.23	Mandate a percentage of daily use of treated wastewater by bulk generators at large residential complexes, commercial, industrial zones, public parks/gardens/green spaces and all corporate gardens by 2026. Enforce increased usage of treated wastewater for bulk generators (as per ZLD policy)	BWSSB vision document	P: BWSSB	BWSSB;s own funds	a. Percentage of daily use of treated water b. List of customers using treated wastewater			2025

	W,WW,SW - 2.24	Use treated wastewater to rejuvenate lakes, especially in peripheral/adjoining areas of the city. This can be used for cultivation by farmers and other appropriate purposes to ensure groundwater replenishment, reduced nutrients for farmers, alternative livelihood opportunities and social cohesion.	BWSSB vision document	P: BWSSB	BWSSB's own funds	Increased treated water usage by farmers for cultivation a. List of lakes in peripheral areas b. Farming activities that are dependent on lakes	Increased recycling and reuse of treated wastewater	a. Increased reuse of water b. Decreased water pollution c. Improved health and safety d. Reduced water scarcity e. Improved livelihood	2030

W,WW,SW- 3: *Restore and enhance sponge spaces to increase groundwater recharge and decrease stormwater runoff through green infrastructure technologies*									
Goal/Target: 40% of city's surface area to become permeable by 2040 by reclaiming ecologically sensitive spaces and adopting nature-based solutions. Convert 75% of the city's footpaths to permeable surface material by 2050									
	W,WW,SW - 3.1	Prepare a policy on stormwater management (such as promoting best practices for stormwater management in urban areas, including the need for stormwater catchment) that enables effective integration of blue-green network of the city and enhances opportunities for nature-based solutions and hybrid infrastructure		P: BBMP-Stormwater Drainage Department S: BDA	BBMP-SWD annual maintenance fund	A policy on stormwater management	Opportunity to use stormwater runoff as a water supply source	a. Decreased runoff b. Improved public health c. Social equity d. Decreased water pollution e. Climate-resilient infrastructure f. Increased water recharge g. Reduced urban heat islands h. Reduced flood risk	2025

	W,WW,SW - 3.2	Develop and enhance sponge spaces, implement low-impact development and NBS in storm water management for the city (such as wetland development that can absorb rain- and floodwater, green roofs, urban gardens (open green spaces and plantation), permeable low concrete surfaces, stormwater tree trenches to ensure recharge of rainwater and to create small- and large-scale capture, from retention vaults under parks to ponds in community gardens)	Aligned with action no. UPGBD- 3.3			Provides hydrologically functioning landscape	Low-cost and energy-efficient infrastructure		2025
	W,WW,SW - 3.3	Prepare a complete spatial database (open access) on the stormwater drainage network indicating the type/ hierarchy of drains (primary/secondary/tertiary) and update the SWD master plan.	Aligned with action no. DM-1.4	P: BBMP-Stormwater drainage department S: BDA	BBMP-SWD annual maintenance fund	Coverage of stormwater drainage network (primary, secondary and tertiary) with lengths	Complete stormwater drainage network map	a. Decreased runoff and increased stormwater collection b. Reduced pollution c. Improved climate-resilient infrastructure	2025

	W,WW,SW - 3.4	Assess the capacity and extent of existing drainage network to evaluate its functioning in various extreme rainfall scenarios.	Aligned with action no. DM- 1.4	P: BBMP-Stormwater Drainage Department S: BDA	BBMP-SWD annual maintenance fund	Analysis of drainage network capacity to hold stormwater a. Precipitation and Rainfall intensity/runoff b. characteristics of catchment areas c. Pollutant load d. data on incidence of water logging/floods	Detailed performance assessment of stormwater network	Flood control	2025
	W,WW,SW - 3.5	Upgrade, improve and expand the existing stormwater drainage network as per the SWD policy informed by spatial database.	Aligned with action no. DM-1.4	P: BBMP-Stormwater drainage department S: BDA	BBMP-SWD annual maintenance fund	Improved drainage network a. Total number of stormwater drains that are encroachedb. Total number of drains that need upgrades	Increased drainage network condition	a. Decreased runoff and increased stormwater collection b. Reduced pollution c. Improved climate-resilient infrastructure	2025
W,WW,SW- 4: *Adopt improved technologies and nature-based solutions for efficient and equitable wastewater treatment that are aligned to the city's mitigation goals*									
Goal/Target: Achieve 95% wastewater treatment with a combination of centralised and decentralised system by 2050. Of this about 60% should adopt low carbon wastewater treatment technologies by 2050.									

	W,WW,SW - 4.1	Implement low-carbon/energy wastewater treatment plants with resource recovery facilities, including nutrient recovery, which recover elements from wastewater, apart from treated wastewater, such as nutrients (nitrogen removal and phosphorus recovery), and energy.	BWSSB vision document, Draft National Policy on the Safe Reuse of Treated Wastewater	P: BWSSB	AMRUT	Total list and capacities of low-carbon/energy wastewater treatment plants in the city	a. Water quality standards Level of DO, phosphorous, nitrates, nitrites, faecal matter; level of sedimentation in freshwater and marine water bodies	Reduced GHG emissions	2030
	W,WW,SW - 4.2	Upgrade existing public STPs to meet CPCB's revised treated effluent standards, and ensure the new STPs that are going to be constructed are meeting the standards.(Treatment to the level required)	BWSSB vison document, Draft National Policy on the Safe Reuse of Treated Wastewater	P: BWSSB S: KSPCB	AMRUT	a. Coverage of wastewater treatment network services b. Quality of wastewater treatment c. Collection efficiency of wastewater d. Adequacy of wastewater treatment capacity.	Efficiently functioning STPs	a. Reduced pollution and odour b. Improve health	2030
	W,WW,SW - 4.3	Conduct regular energy audits through participatory approach to monitor energy intensity of sewerage network and wastewater treatment plants	Energy audit report – BESCOM	P: BWSSB, BESCOM	BESCOM funds	a. Energy audit of water b. Total expenses on pumping and transporting water from Cauvery to the city.	Reduced energy usage for pumping, treatment and supply	Reduced energy usage and GHG emissions	2040

	W,WW,SW - 4.4	Conduct regular IEC campaigns on low-carbon/energy wastewater treatment and reuse potential, in partnership with stakeholders such as NGOs, civil society platforms, citizens' forums, RWAs, academic institutions, Pollution Control Board, etc., to sensitise citizens about treated water reuse and to nudge social behaviour change.	Draft National Policy on the Safe Reuse of Treated Wastewater	P: BWSSB	Jal Jeevan Mission IEC funds	Database on ward-level IEC campaigns	Increased awareness on wastewater reuse and recyclingpotential, and energy efficiency	Reduced untreated wastewater discharge	2025

	W,WW,SW - 4.5	Prepare a plan for incremental shift towards improved and more efficient technologies to minimise GHG emissions from wastewater, and encourage and incentivise low- carbon/energy solutions for decentralised wastewater treatment in neighbourhoods/large residential complexes/public places/ institutional complexes, especially with biological treatment with low energy consumption and enhanced mitigation benefits (need to meet the standards for irrigation/fit for purpose)	Draft National Policy on the Safe Reuse of Treated Wastewater	P: BWSSB	AMRUT, BWSSB own funds	a. Incentives for low-carbon wastewater treatment plants b. A detailed plan to shift towards low-carbon treatment c. total number of centralised and decentralised wastewater treatment d. Total number of low-carbon wastewater treatment plants	More decentralised low-carbon wastewater treatment facilities	a. Reduced GHG emissions b. Increased low-carbon water treatment	2030
	W,WW,SW - 4.6	Maintain a complete open access database on private STPs across the city		P: KSPCB	KSPCB's own funds	List of private STPs across the city		Increased job opportunities	2025
	W,WW,SW - 4.7	Conduct regular inspections of private STPs and revisit STP approval process to ensure effective performance of private STPs		P: KSPCB	KSPCB's own funds	List of inspections conducted to check installation and performance of STPs	Effective performance of STPs		2025

	W,WW,SW - 4.8	Conduct mandatory training sessions for operators and service providers on the operation and maintenance of private STPs, as a part of the approval process		P: KSPCB	KSPCB's own funds	a. O&M training session modules b. List of consumers and service providers c. Manpower dataset	Improved wastewater treatment	a. Improved skilled labour b. Reduced water pollution c. Increased energy efficiency d. Improved livelihood and job opportunities	2025
	W,WW,SW - 4.9	Ensure implementation of NAMASTE scheme = to eradicate unsafe sewer and septic-tank cleaning practices introduced in February 2023 by the Ministry of Social Justice and Empowerment.	NAMASTE scheme, 2023	P: BBMP	NAMASTE scheme	a. IEC campaignb. Livelihood assistance c. Identification of sewer/septic tank workers (SSW) d. Occupational training and distribution of PPE kits to SSWs	Ensure safety of sanitation workers	a. Improved livelihood and health of workers b. Reduced pollution	2025
	W,WW,SW - 4.10	Create a market for by-products of wastewater treatment, making wastewater treatment plants more environmentally and financially sustainable. (Enforce ZLD and build in flexibility)		P: BWSSB	BWSSB's own funds	Market for wastewater by-products a. list of business models supporting wastewater by-products sale b. List of consumers and	Recovery of water, energy, and nutrients	a. Reduced GHG emissions b. Improved energy efficiency c. Improved health d. Improved	2030

						sellers c. Price of by-products d. Type of by-products and usage		livelihood and job creation	
	W,WW,SW - 4.11	Explore innovative financing mechanisms/business partnerships (such as micro-contributions, taxes, public-private partnerships and market-based financial transactions) that can encourage the development of and investment in wastewater systems to deliver cost-effective wastewater infrastructure.		P: BWSSB	BWSSB's own funds	a. PPP b. Incentives and sufficient financial sources	Cost effective delivery of wastewater treatment		2030

6 Urban planning, greening, and biodiversity

Sectoral action tracks

No.	Action track
UPGBD-1	Promote compact development through mixed use, walkable neighbourhoods
UPGBD-2	Develop climate-resilient and nature-integrated plans for the city and city-region through participatory planning practices
UPGBD-3	Adopt nature-based solutions (NBS) as an urban planning and design tool to improve resilience and liveability
UPGBD-4	Conserve, restore and manage the city's biodiversity
UPGBD-5	Improve access to essential services and infrastructure, including safe and affordable housing for all

What are nature-based solutions (NBS)?

Nature-based solutions are actions to protect, sustainably manage, or restore natural ecosystems, that address societal challenges such as climate change, human health, food and water security, and disaster risk reduction effectively and adaptively, simultaneously providing human well-being and biodiversity benefits. For example, a common problem is the flooding in coastal areas that occurs as a result of storm surges and coastal erosion. This challenge, traditionally tackled with manmade (grey) infrastructure such as sea walls or dikes, can also be addressed by actions that take advantage of ecosystem services such as tree planting. Planting trees that thrive in coastal areas – known as mangroves -- reduces the impact of storms on human lives and economic assets, and provides a habitat for fish, birds and other plants supporting biodiversity.

Estimates suggest that nature-based solutions can provide 37% of the mitigation needed until 2030 to achieve the targets of the Paris Agreement. How can this be done? If you plant trees, they're going to soak up carbon. For example, restoring native forest at the margins of the river to avoid landslides can also act as a carbon sink. Climate-smart agriculture is another example that enables farmers to retain more carbon in their fields as they produce crops. Decreasing deforestation is another way to benefit from nature-based solutions – for example, by paying farmers not to cut down the forest preserves ecosystem services such as carbon sequestration, provision of clean drinking water, and reduction of river sedimentation downstream.

Nature-based solutions also play a key role in climate change adaptation and building resilience in landscapes and communities. Several nature-based solutions are being used by the World Bank to help manage disaster risk and reduce the incidence and impact of flooding, mudslides, and other disasters. They are a cost-effective way of addressing climate change while also addressing biodiversity and land degradation. You can address several problems at once.

But it's not automatic that everything you plant becomes a nature-based solution that contributes to biodiversity – for example, planting trees that are not from the region and are toxic to local animals would not generate biodiversity benefits.

Source: World Bank, 2022; What You Need to Know About Nature-Based Solutions to Climate Change (C. Explainer 2022)

Track-wise actions

Priority	S.No.	Actions	Aligned with (ongoing initiatives/other actions)	Responsible Agency Primary (P) Secondary (S)	Potential Source of funding	Output	Outcome	Co-benefit	Timeline *(Targeted year of completion of action)*
UPGBD-*1:* *Promote compact development through mixed use, walkable neighbourhoods connected by public transport*									
Goal/Target: Prepare and adopt the RMP 2041, and set up the Master Plan Coordination Committee, by 2025									
	UPGBD -1.1	Revise the city's master plan based on compact development principles and incorporate provisions of the approved Bengaluru TOD Policy.	*Approved Bengaluru TOD Policy, BMLTA Bill, CMP 2020 and Parking Policy 2.0 * Pilot project planning for TOD and MMI along Phase 2A-2B metro corridor * RMP 2041 under preparation	P: BDA S: BMLTA/DULT; all development, regulating, and sectoral/line agencies concerned	BDA's own funds	Approved RMP 2041; Institutional set-up for master plan implementation + monitoring	a. % increase in population with access to a public transport stop/station, public open space, primary education and healthcare facility within 10/12-min walking distance. In TOD Zones (against baseline and non-TOD areas): b. % increase in street and NMT	a. Improved accessibility, liveability and resource efficiency b. Reduction in use of private vehicles and shift to PT and NMT modes c. Reduction in vehicular fuel consumption, traffic congestion, air pollution and crashes	2025

	UPGBD-1.2	Prepare and adopt the 'TOD Vision and Corridor Plan' and TOD Zone Plans (TZPs) for all stations along metro Phases 2A-2B by 2025. Prepare and adopt TZPs for all mass transit stations in the city by 2035 based on a TOD phasing strategy.		P: DULT/BMLTA, BDA, S: BIAAPA, UDD, GoK ,BBMP, BMRCL, KRIDE, BIAL, BMTC, KSRTC, BMRDA, BWSSB, BESCOM, KIADB, BTP	BMLTA/ UTIF Fund; planning and implementing agency's own resources	a. No. of TOD Corridor and Zone Plans prepared and approved b. No. of public-sector and private-sector TOD schemes/projects approved and implemented	network density and connectivity. c. % increase in population and job densities d. % increase in affordable housing DUs (under 60 sqm)		2025 (Prepare TOD Vision and Corridor Plan' and TOD Zone Plans (TZPs) for metro corridors 2A and 2B) 2035 (Prepare and adopt TZP for all transit stations)
	UPGBD-1.3	Implement strategic public-sector led TOD schemes and catalytic projects in a time-bound manner (based on TOD phasing strategy and plans).							2030 ; 2035 ; 2040 (target years to implement the projects)

UPGBD-2: *Develop climate-resilient and nature-integrated plans for the city and city-region through participatory planning practices*									
Goal/Target: All spatial plans and DCRs to adopt climate action as a lens by 2030									
	UPGBD-2.1	Revise the Karnataka Town and Country Planning Act (KTCPA) to mandate land suitability based carrying capacity assessment and vulnerability assessment including climate parameters, along with the preparation of spatial master plans for all statutory towns. In addition, a greenhouse gas inventory should be mandated for all Class 1 towns/cities. Provisions for Town Planning Schemes (and Local Area Plans, if included) within the KTCPA, should mandate an	*The Karnataka Town and Country Planning (KTCP) Act, 1961	P: DTCP S: UDD, GoK	GoK	a. Updated, revised and approved KTCP ACT b. No. of master plans revised/prepared based on suggested reforms and approved c. No. of TPS/LAPs prepared based on the suggested reforms and approved d. No. of Class 1 towns/cities that have prepared a GHG inventory	a. Climate- and environment-conscious master plans and TPS preparation process is institutionalised	a. Mitigation and management of adverse social and environment impacts b. Improved natural infrastructure management and resource efficiency c. Reduction in climate hazards and vulnerability	2026

		assessment of infrastructure carrying capacities and augmentation potential, environmental and social impacts of development proposals, along with appropriate management plans.							
	UPGBD-2.2	Revision of the BMRDA Structure Plan (RSP 2031) should align with the regional imperatives of CAP.	Revised Structure Plan 2031 (RSP 2031) for Bengaluru Metropolitan Region, prepared under provisions of the BMRDA Act, 1985	P: BMRDA S: DTCP	BMRDA's own funds	a. Revised BMRDA Structure Plan (with CAP imperatives)	a. Climate- and environment-conscious regional planning in BMRDA area		2031
	UPGBD-2.3	Create institutional mechanisms to address new forms of governance for managing regional growth and resource sheds.		P: GoK S: BMRDA, MPC	GoK				2028

	UPGBD-2.4	The city's master plan revision should integrate economic development strategies for growth areas/corridors in the metropolitan area. Land use planning must protect natural infrastructure and demarcate ecologically sensitive areas.	*RMP 2041 under preparation	P: BDA S: BMRDA, MPC, DTCP	BDA's own funds	a. Revised and approved master plan b. Clearly demarcated ecologically sensitive areas in the city	a. Climate- and environment-conscious planned urban growth b. Sustainable economic development of the city c. Decrease in encroachment of environmentally sensitive areas	a. Reduction in GHG emissions b. Increased resource efficiency c. Reduction in climate hazards and vulnerability	2025
	UPGBD-2.5	Embed CAP imperatives into RMP urban design guidelines and ZRs.	*RMP 2041 under preparation	P: BDA S: DTCP	BDA's own funds	a. Revised master plan's urban design guidelines and ZRs embedded with CAP imperatives			2025
	UPGBD-2.6	All plan preparation, particularly at the local area/ward level, should ensure participation from the informal sector, and vulnerable and marginalised communities.	*RMP 2041 under preparation * Approved Bengaluru TOD Policy and Pilot TZPs preparation	P: BDA, BBMP S: All development, regulating, and sectoral/line agencies concerned	Own funds of all agencies concerned	a. No. of public discussions and citizens' consultations held b. No. of discussions/consultations specifically including informal sector workers, and vulnerable and marginalised groups' representatives	a. Better understanding of ground-level issues, challenges and opportunities b. Bottom-up participatory planning processes are institutionalised	a. Amplified public voice in plan-making, better acceptability and ownership of plans among citizens b. Improved transparency, accountability and trust	(As per the timelines of the plans)

	UPGBD-2.7	Create an integrated spatial database for the city which is periodically updated, and make it publicly accessible through a dashboard.	* RMP 2041 under preparation * Pilot project for TOD and MMI planning along Metro Phases 2A-2B corridor * BBMP's location-based dashboard, ward level information	P: KSRSAC S: All development, regulating, and sectoral/line agencies concerned	GoK	a. Integrated spatial database is prepared, regularly updated and dashboard is accessible to public	a. Better visualisation of existing status and issues at different scales b. Informed decision-making by public and private stakeholders c. Improved co-ordination in planning and implementation among stakeholder agencies d. Efficient monitoring and evaluation	a. Improved transparency, accountability and trust	2025
	UPGBD-2.8	Ensure stringent enforcement of all plans, revised. to accommodate CAP imperatives. Strengthen review and monitoring systems for all schemes/projects (at approval and implementation stages), through the integrated spatial database		P: BDA, BBMP S: Department of Personnel and Administrative Reforms (DPAR)	Own funds of all agencies concerned	a. Strict enforcement of revised master plan, structure plan, TZPs b. Reduction in the no. of building violations and non-adherence issues from approved schemes/projects c. Updated integrated spatial database	a. Environment- and climate-conscious planned urban growth b. Sustainable economic development of the city c. Decrease in encroachments of environmentally sensitive areas d. Efficient	a. Resource efficiency b. Increased economic growth c. Reduction in climate hazards d. Reduction in GHG emissions	2025-2050

		and e-governance measures.					project monitoring and evaluation, leading to efficient decision making e. Adoption of e-governance measures for review and monitoring f. Effective plan implementation/ enforcement		
UPGBD-3: *Adopt nature-based solutions(NBS) as an urban planning and design tool to improve resilience and liveability*									
Goal/Target: Conserve and restore all blue-green networks in the city. All urban infrastructure schemes and projects should adhere to disaster resilience standards.									
Increase the city's tree cover (canopy) from the baseline by 10% by 2030 and 20% by 2040.									
Increase the city's green (vegetation) cover and permeable surfaces to 40% of the city's area by 2040, to tackle flood- and heat-related disaster risk reduction.									
Convert 75% of the city's footpaths to permeable surface material by 2050									
	UPGBD-3.1	Create a **Blue-Green Policy** for BUD. It should incorporate strategies and guidelines for public streets and spaces, eco-mobility/recreation networks, sustainable urban drainage systems		P: BMRDA S: Local Planning Area Authorities within BMR, Forest Department (BUD),	GoK, BMRDA's own funds	a. Blue-Green Policy for Bengaluru Urban District is prepared	a. Restoration and enhancement of blue-green networks, city streets and spaces. b. % of street network integrated with NBS c. No. of public spaces integrated	a. Reduction in total GHG emissions and air pollution b. Improved environmental and public health	2026

		and the built environment. Integrate NBS within long-term disaster risk management and prevention protocols.		BBMP, UDD			with NBS d. Reduction in the impacts of climate related hazards and vulnerability		
	UPGBD-3.1a	Spatial master plans or working plans of various local authorities/departments should incorporate Blue-Green Policy imperatives.	Aligned with action no. UPGBD-3.1	P: Local Planning Area Authorities within BMR, S: UDD, Forest Department (BUD), BBMP	Agencies' own funds	Spatial master plans and department working plans incorporate Blue-Green policy imperatives			2025-2030
	UPGBD-3.2	Complete the ongoing Tree Census exercise in the city by 2025 and update periodically.		P: BBMP S: Forest Department (BUD)	BBMP's own funds, NCAP grants	a. Comprehensive and updated Tree Census for Bengaluru is prepared	a. % change in number of trees/ tree cover (carbon sinks) b. % change in native species	a. Increased awareness on need for conservation and enhancement of tree cover b. Reduction in total GHG emissions c. Reduction in climate hazards and vulnerability	2025

	UPGBD-3.3	Map the city's blue-green cover, including natural drainage, water bodies, floodplains, trees outside forests (TOF), etc., to create a baseline and integrate into the city's spatial database to facilitate regular updating.	Aligned with action no. UPGBD-2.7 (Integrated Spatial Database)	P: KSRSAC S: BBMP, BDA, Forest Department (BUD), KLCDA, Revenue Department	Agency" s own funds, GoK	a. Integrated spatial database with specific layers on various natural features and types of blue-green cover	a. Informed decision-making by public and private stakeholders b. Co-ordinated planning and implementation among stakeholder agencies c. Effective monitoring and evaluation d. No. of types of natural assets conserved and restored	a. Increased awareness on need for conservation of natural infrastructure. b. Improved transparency, participation, accountability and trust c. Reduction in total GHG emissions d. Reduction in climate hazards and vulnerability	2025

	UPGBD-3.4	Adopt changes to DCRs/Building Bye-laws to incorporate NBS and hybrid infrastructure to increase permeable areas (for instance, reserved area for parks/open spaces),and incentivise them.	* Aligned with action no. UPGBD-2.5 * RMP 2041 under preparation * BBMP Building Bye-laws 2003	P: BDA, BBMP S: All development, regulating, and sectoral/line agencies concerned	Agencies' own funds	a. Revised DCRs and Building Bye-laws incorporating NBS	a. Volume of water retention capacity created (cu. m.) b. % increase in permeable surface area and recharge potential c. Volume of collected rainwater available (cu. m.) d. Decrease in % of heavy rainfall events leading to flooding e. % of vulnerable areas covered by NBS. f. Temperature difference/ reduction between permeable and non-permeable areas g. % change/increase in public open spaces	a. Reduction in total GHG emissions b. Reduction in air pollution c. Reduction in climate hazards and vulnerability, especially in low-income neighbourhoods	2025
	UPGBD-3.5	Prepare and adopt public works (engineering) standards and SOPs to incorporate NBS and hybrid infrastructure requirements, including for low-income neighbourhoods.		P: BBMP S: PWD, BDA	Agencies' own funds, GoK, NCAP grants, PPP	a. Public works/engineering standards and SOPs incorporating NBS			2025

	UPGBD-3.6	Undertake conversion of footpaths and on-street parking spaces to permeable surface material.	*Aligned with action no. UPGBD-3.5; *TenderSURE road standards	P: BBMP S: PWD, BDA	Agencies' own funds, GoK, PPP	a. % footpaths (km) and on-street parking spaces (sq. m.) converted to permeable surfaces.			2024 to 2040
	UPGBD-3.7	Prepare and adopt a **greening guideline** for the city with a list of suggested species based on context and planting area, etc. Compensatory greening initiatives should also refer to this.		P: BBMP, S: KBB, Forest Department (BUD)	Agencies' own funds, GoK, NCAP grants, PPP	a. 'Greening Guidelines approved	a. % increase in green cover, tree cover b. % increase in plantation area with native species, and reduction in non-native c. % increase in number of native trees, captured through the Tree Census d. % target achieved for urban greening sector		2025
	UPGBD-3.8	Identify neighbourhoods, streets, public/semi-public and private spaces to take up suitable NBS initiatives, through a participatory	*Aligned with action No. UPGBD-2.7 (integrated spatial database) *CCRA-VA Analysis	P: BBMP, S: BDA, KSRSAC, Forest Department (BUD)	Agencies' own funds, NCAP grants, funds under greening schemes	a. Total area identified for NBS initiatives b, No. of stakeholder consultations conducted to identify spaces for NBS initiatives	a. % increase in green cover b. % increase in tree (canopy) cover (in sqm.) c. % increase in blue cover d. % increase in permeable		2024-2030

		process. This can be informed by the CCRA (including VA) to ensure targeted action in high-risk locations. Demarcate identified areas in the city's spatial database and track ongoing initiatives.			(GUA, AOA, RSP schemes), PPP and other innovative mechanisms.	c. Periodic updating of city's integrated spatial database with identified areas for NBS initiatives	surfaces e. % of population within 15 minutes from green cover (disaggregated)		
	UPGBD-3.9	Define implementation and funding mechanisms for these NBS initiatives, for e.g. PPP, link to compensatory greening, etc. Identify government funding sources (budget allocations) and other innovative financing such as green bonds and CSR.	*Aligned with action No. UPGBD-3.8 (NBS activities)	P: BBMP, S: BDA, EMPRI, GoK, Forest Department (BUD)	Agencies' own funds, NCAP grants, funds under greening schemes (GUA, AOA, RSP schemes), PPP and other innovative mechanisms.	a. Implementation and financing strategy and mechanisms are defined b. No. of existing and new/innovative funding sources identified for NBS initiatives c. Total funds available for NBS initiatives			2025

	UPGBD-3.10	Design an **urban employment scheme** with a three-pronged objective of economic development, ecological/biodiversity protection, and employment generation. This can include cleaning and maintenance of water bodies and drains, tending urban greens, urban agriculture, environmental mapping and monitoring, etc)	Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM); Self-employment Scheme of KMDC; proposed National Urban Employment Guarantee Scheme	P: GoK S: BBMP, Forest Department (BUD), UDD	GoK, Agencies' own funds	a. Urban Employment Scheme is prepared and approved b. No. of green jobs created c. No. of people employed for green jobs through this scheme	a. % increase in incomes from green jobs b. Improved quantity and quality of blue-green infrastructure	a. Increase in employment/livelihood opportunities b. Improved biodiversity and other ecosystem services c. Reduction in climate hazards and vulnerability	2026
	UPGBD-3.11	Promote participatory processes for planning and implementing NBS in the city. Take up IEC campaigns to elicit local participation.	*Aligned with action No. UPGBD-3.8 (NBS activities)	P: BBMP. S: EMPRI, Forest Department (BUD)	Agencies' own funds, NCAP grants	a. IEC materials/toolkits prepared b. No. of IEC sessions/activities conducted	a. % increase in green cover b. % increase in tree (canopy) cover (in sq. m.) c. % increase in blue cover d. % increase in permeable surfaces	a. Reduction in total GHG emissions b. Reduction in air pollution c. Reduction in climate hazards and vulnerability	2025 onwards
	UPGBD-3.12	Conduct capacity-building activities for:	*Aligned with action No. UPGBD-	P: BBMP,	Agencies' own funds,	a. No. of capacity-building workshops conducted	a. Increase in budget allocation for NBS initiatives		2025 onwards

		(a) Actors involved in NBS initiatives, to promote scientific approach towards implementation and maintenance (b) Sensitise and empower officials to case-build for adequate budget from diverse sources for NBS initiatives	3.8 (NBS activities)	S: EMPRI, Forest Departmen t (BUD)	NCAP grants	b. No. of people (including officials) trained	b. Increase in number of NBS initiatives approved and implemented c. % increase in permeable surfaces, tree canopy, green and blue cover		
UPGBD-*4:* *Conserve, restore and manage the city's biodiversity*									
Goal/Target: Operationalise the (recently re-constituted) BMC by 2023 and prepare the People's Biodiversity Register by 2025									
	UPGB D-4.1	As per the Biological Diversity Act, 2002 and Karnataka Biological Diversity Rules 2005: 1) Ensure functionality of the Biodiversity Management Committee (BMC) within the BBMP by providing them a conducive ecosystem (funds/functionari es). 2) Prepare the	Biological Diversity Act, 2002 and Karnataka Biological Diversity Rules 2005	P: BBMP - BMC (for preparation of PBR and setting up of fund) S: Forest Departmen t (BUD), KBB - technical support and guidance for preparation of PBR	Agencies ' own funds; instituti onal grants; CSR; GoK	a. Rules and SoPs for BMC are established b. No. of stakeholder/citizen engagement sessions conducted c. PBR is prepared, shared publicly and periodically updated d. Biodiversity Fund is set up for the city/district.	a. Improved local biodiversity (species) and other ecosystem services b. Active involvement of citizens	a. Increased adaptive capacity and resilience in the face of climate hazards	2024 (1); 2026 (2 and 3)

		People's Biodiversity Register (PBR) - through a multi-stakeholder participatory process at the zone level (8 BBMP Zones) and update it periodically. 3) Set up a Local Biodiversity Fund.							
	UPGBD-4.2	Develop a Local Biodiversity Strategy and Action Plan (LBSAP). Apart from ecological, cultural, recreational and aesthetic aspects, it should consider biodiversity from a livelihood lens.	Biological Diversity Act, 2002, and Karnataka Biological Diversity Rules 2005	P: BBMP - BMC S: Forest Department (BUD), KBB - technical support	Agencies' own funds; institutional grants; CSR; GoK	a. Strategic Action Plan for conserving, restoring and managing city's biodiversity is prepared			2025

	UPGBD-4.3	Prepare a City Biodiversity Index and make it publicly available. As part of the index, spatially map biodiversity hotspots and habitat degradation. Develop a mobile application and QR code-based toolkit for interactive biodiversity conservation and management.	Biological Diversity Act, 2002, and Karnataka Biological Diversity Rules 2005	P: BBMP - BMC S: Forest Department (BUD), KBB - technical support	Agencies' own funds; institutional grants; CSR; GoK	a. City Biodiversity Index is prepared, shared publicly and periodically updated			2026
UPGBD-*5:* *Improve access to essential services and infrastructure, including safe and affordable housing for all* Goal/Target: By 2050, provide safe and affordable housing for 100% urban poor and vulnerable groups in locations having access to public transport stops/stations within a 5-minute walk By 2050, increase the city's publicly accessible per capita open space from the existing 2.2 sqm. to 6 sqm									
	UPGBD-5.1	Identify and demarcate safe and accessible affordable housing locations (land use zones and public land parcels) for the urban poor (EWS-LIG) in the city's master plan.	*RMP 2041 under preparation *CCRA-VA Analysis	P: BDA, S: BBMP, KSDB, KHB, KSRSAC	Agencies' own funds	a. RMP 2041 demarcates safe and accessible locations for affordable housing	a. Increase in adaptive capacity and resilience of urban poor households towards climate hazards and vulnerabilities. b. Improved quality of life	a. Resource efficiency b. Reduction in economic costs due to hazard/disaster-related loss of life and damage to property, particularly for	2025

	UPGBD-5.2	Based on the CCRA-VA, identify and prioritise slums and other low-income settlements for targeted action. Prepare a strategy for climate-proofing and improving resilience in these settlements, including appropriate retrofitting and upgrades (low-cost NBS), in situ redevelopment, disaster management and response facilities, etc. Illegal/unauthorised slum and squatter settlements in demarcated no-development buffer zones and high-risk locations should be rehabilitated in safe and accessible affordable housing	* Aligned with Action Track 3 of UPGBD (Action no. UPGBD-3.4, 3.5 and 3.8) * CCRA-VA analysis	P: BBMP S: KSDB, KHB, BDA, KSNDMC, KSRSAC	Agencies' own funds, GoK - various urban housing schemes	a. Slums, low-income settlements in hazard-vulnerable locations are identified and notified for improvement schemes b. Climate-proofing strategies for hazard-resilient, affordable housing for the urban poor are defined.	conditions for urban poor households	urban poor households and government agencies	2025

		locations (identified above).							
	UPGBD-5.3	Remove illegal/unauthorised developments in demarcated no-development zones (ecologically sensitive areas, buffers and other high-risk locations).	Connected to demarcation of ecologically-sensitive/ buffer areas and stringent enforcement points above, and 5.2 (Identification of high-risk locations)	P: BBMP, BDA S: Police Department	Agencies' own funds	a. Reclamation of illegally encroached areas	a. % increase in ecologically sensitive/buffer areas conserved and restored b. % decrease in population adversely affected due to climate hazards	a. Increase in green and blue cover b. Reduction in climate hazards and vulnerabilities c. Reduction in total GHG emissions	2035
	UPGBD-5.4	Ensure access to mass transit stations, public open spaces, daily needs markets, primary education and healthcare	* RMP 2041 under preparation * Approved Bengaluru TOD Policy * Disaster	P: BDA S: BBMP, BMRDA	Agencies' own funds	a. Spatial plans include enabling proposals and regulations to improve access to basic infrastructure for all - based on a	a. % of population having access to amenities/services within a 15-minute walking distance b. Reduction in	a. Reduction in GHG emissions and air pollution b. Increase in resilience and adaptive capacity in the face of	2025-2040

		facilities within a 15-minute walking distance for 100% of the population. Promote this through spatial plans and DCRs.	Resilience Actions			mapping and assessment of current accessibility levels.	number of trips, trip distances and vehicle km travelled	climate hazards and vulnerability	
	UPGBD-5.5	Mandate adoption of universal accessibility standards in urban design (public streets, spaces) guidelines and development regulations.	* TenderSURE guidelines * DULT's policies and guidelines for TOD, NMT, pedestrian infrastructure, road safety, Draft Active Mobility Bill, etc.	P: BBMP, DULT S: BDA, PWD	Agencies' own funds	a. Design guidelines and development regulations mandate adherence to universal accessibility standards	a. % of public streets and spaces, public transport facilities and buildings that are universally accessible b. Services, infrastructure and amenities accessible to all irrespective of age/ability/gender	a. Inclusive development b. Improved liveability c. Increase in resilience and adaptive capacity towards climate hazards and vulnerability	2026
	UPGBD-5.6	Recognise urban ecosystems (water-bodies, green spaces, etc.) as **'urban commons'** and allow local communities to access them for their livelihoods and subsistence, apart from	*Aligned with action No. UPGBD-3.1 (Blue-Green Policy)	P: BBMP S: KLCDA, BDA, Forest Department, GoK	Agencies' own funds	a. Guidelines for inclusive design and access to urban commons and ecosystem services are defined within the Blue-Green Policy b. No. of IEC sessions conducted to spread awareness	a. Improved access to public open spaces and commons b. % increase in per capita public open space c. % of population within 15 minute' walking distance from public open spaces		2025

		recreation/leisure and educational purposes.					(disaggregated by income level)		
	UPGBD-5.7	Map, plan and provide public open spaces based on the demand and availability gap analysis for equitable distribution of open spaces.	*RMP 2041 under preparation * Approved TOD Policy	P: BDA, BBMP S: Forest Department, public/semi-public institutions	Agencies' own funds, PPP	a. Mapping of public open spaces and civic amenity sites is integrated into the spatial database and periodically updated. b. Appropriate proposals and regulations for creation and equitable distribution of public open spaces are incorporated into spatial statutory plans.			2025-2040

7 Disaster management

Sectoral action tracks

No.	Action track
DM- 1	Create a comprehensive spatio-temporal database pertaining to climate hazards, impacts, vulnerabilities
DM-2	Create a robust policy framework for disaster management including policies for addressing loss and damage from climate and environmental hazards
DM-3	Empower citizens, civil society and local platforms to adopt a decentralised and inclusive approach towards DRR
DM-4	Enhance ecosystem capacity to reduce disaster risk through faster and better response

Track-wise actions

Priority	S.No	Actions	**Aligned with** (ongoing initiatives/other actions)	**Responsible Agency** Primary (P) Secondary (S)	**Potential Source of funding**	**Output**	**Outcome**	**Co-benefit**	**Timeline** *(Targeted year of completion of action)*
DM- *1:* *Create a comprehensive spatio-temporal database pertaining to climate hazards, impacts, vulnerabilities.*									
Goal/Target: A comprehensive and regularly updated data repository for the city									
	DM - 1.1.	Assess available datasets pertaining to climate and environmental hazards, identify gaps, and create a list of the complete repository of datasets needed for a comprehensive city-level database.	a. Forecasting and early warning systems as per National Disaster Management Policy. b. KSNDMC and KSRSACs data-driven exercises towards comprehensive state-level data availability	P: BBMP S: BUD, KSNDMC and KSRSAC	Included in the budget of National Data Governance Policy State Budget for Bengaluru city BBMP budget	Creation of a data repository along with spatial maps of disaster occurrence	Better preparedness for future disasters	Reduction in loss and damage during disasters	2024

	DM - 1.2	Prepare a comprehensive city-level database which is regularly updated and that comes under the purview of a unified body. It should include: -Climate datasets including temperature, precipitation, humidity, windspeed, etc. -Data sets on hazard occurrence history and its impact, including loss and damage of lives, livelihoods and economy. -Systemic evaluation and recording of the social, health, environmental and economic impacts of the disaster. -Datasets on demographics and the socio-economic scenario, migrant population, gig workers, etc. -Encourage the use of technology to crowdsource data on disasters	a. KSNDMCs current data-driven exercise on climate-related datasets as per the Karnataka State Disaster Management Plan 2020-21 b. Other datasets to be included as needed in the city-level action plan	P: BBMP S: BUD, KSNDMC and KSRSAC	Included in the budget under the National Data Governance Policy State budget for Bengaluru city BBMP budget	Creation of a data repository, along with spatial maps of disaster occurrence	Better preparedness for future disasters	Reduction in loss and damage during disasters	2025
	DM - 1.3	Conduct yearly detailed assessments of loss and damage from all types of disasters occurring in the city. This should include datasets on -Loss of lives/fatalities due to disasters - Injuries/health impacts that can be attributed to disasters - Economic loss due to disasters.	a. Aligned with different sector action tracks, including energy, transport, water and wastewater, solid waste management,	P: BBMP S: BUD, KSNDMC, KSDMA and other sector-specific department, including the Health	Included in the budget of National Data Governance Policy State Budget for Bengaluru city	Creation of a data repository of loss and damage occurrence due to disasters	Better preparedness for future disasters	Reduction in loss and damage during disasters	2025

		This should also include loss of livelihoods of vulnerable communities and migrant workers - Loss of assets and infrastructure including electric poles, water, water lines, etc., as well as individual loss of property, due to disasters - Tree fall and loss of other green cover	urban planning, greening and biodiversity.	Department	BBMP budget				
	DM - 1.4	Spatial mapping of access to basic services within the city: Spatial mapping of natural network, networked infrastructure such as the capacities of storm water drains in the city. This could be a data-based approach taking into account past rainfall trends, vulnerable locations, natural topography, etc.		P: BBMP S: BUD, KSNDMC and KSRSAC	Included in the budget of National Data Governance Policy State budget for Bengaluru city BBMP budget	Creation of a data repository along with spatial maps of disaster occurrence	Better preparedness for future disasters	Reduction in loss and damage during disasters	2025

	DM - 1.5	Regular update of the CCRA-VA document once in two years, including: - Spatio-temporal mapping of existing disasters, along with projections for the near future, on a regular basis, especially when there is an expected rise in occurrences of a particular disaster. - Spatial mapping of specific vulnerable communities will give a glimpse of those that are more vulnerable than others. - Spatial mapping of locations of informal settlements, migrant workers, gig workers, etc.		P: BBMP S: BUD, KSNDMC and KSRSAC	Included in the budget of National Data Governance Policy State budget for Bengaluru city BBMP budget	Regularly updated CCRA-VA document	Better preparedness for future disasters	Loss and damage reduction	2025
	DM - 1.6	Create a citizen-faced disaster dissemination information system with a multi-pronged approach. In addition to available systems, this could be achieved by exploring the use of existing PIS systems and other outreach mediums in a more efficient manner to enhance the reach of the information itself.	a. Existing mobile application called Megha Sandesha, which gives real-time local weather conditions, including possible occurrence of disasters. b. Call centre	P: BBMP S: BUD, KSNDMC and KSDMA	Included in the budget of National Data Governance Policy State budget for Bengaluru city BBMP budget	An effective, inclusive, and equitable disaster dissemination system	Greater awareness about disasters and their occurrence, across all social groups	Loss and damage reduction	2025

			called Varuna Mitra, which also gives this information. c. Other PIS systems of other agencies						
DM- *2:* *Create a robust policy framework for Disaster Management including policies for addressing loss and damage from climate and environmental hazards*									
Goal/Target: A comprehensive disaster management plan									
	DM - 2.1	Frame a robust city-level policy framework in the form of a Disaster Management Plan to strengthen disaster risk governance for prevention, mitigation, preparedness, response, recovery and rehabilitation. The plan should incorporate the key findings from CCRA-VA with regular updates, with every new iteration of the CCRA-VA document.	a. National Disaster Management Act b. Karnataka State Disaster Management Plan	P: BBMP S: BUD, KSNDMC and KSDMA	BBMP budget	A robust planning system in place during disasters for better preparedness, and prompt action at all levels	Enhance the city's planning systems for prompt action	Reduction in loss and damage during disasters	2024

	DM - 2.2	Develop a Disaster Risk Reduction Plan that would enhance the city's long-term resilience using the principles of the Sendai framework. This is in addition to the Disaster Management Plan that the city would have. This should ideally include the following: Frame a multi-hazard-level plan for the city, incorporating findings from the CCRA-VA document. Establish a mechanism for a well-coordinated system across line departments at the ward/zonal level for disaster preparedness and disaster response Conduct a detailed assessment of the impact on mobility of various groups of people during disasters, and impact on access to services and opportunities. Sector plans for infrastructure and mobility to be informed by this plan (Refer 2.3). Develop and strengthen a mechanism to protect livelihoods and assets of individuals, especially of those from lower socio-economic strata and low-income groups.	a. Karnataka State Disaster Management Plan	P: BBMP S: BUD, KSNDMC and KSDMA	BBMP budget Infrastructure for disaster management	A city-level planning system to enhance the resilience of people, infrastructure and the economy	Enhance the city's resilience to disasters	Reduction in loss and damage during disasters	2025

		Partner with local organisations and citizen-level initiatives to build individual and community resilience capacities Streamline the mechanism for post-disaster recovery activities including faster disbursement of funds.							

	DM - 2.3	Incorporate Disaster Risk Reduction Planning in the planning, operation and management of various sectors such as energy, water supply, wastewater management, transport, solid waste, urban planning, greening and biodiversity, etc	Aligned with different sector action tracks, including energy, transport, water and wastewater, solid waste management, urban planning, greening and biodiversity.	P: BBMP S: Sector specific departments such as BESCOM, BWSSB, Transport, SWM, Urban Planning, Forestry, and Horticulture	Infrastructure for disaster management	Enhance resilience of basic services against disasters	Improved chances of uninterrupted access to services during disasters	Better access to services	2026
	DM - 2.4	Ensure compliance with norms pertaining to land use, resource management, and health and safety, to enhance disaster resilience. Strengthen and the sustainable use and management of natural resources and blue green networks in the city to enhance resilience.	Aligned with multiple actions in the Urban Planning, Greening and biodiversity sector, such as UPGBD-1.1, 3.1, 3.3, 3.8, 5.5, 5.6	P: BBMP S: BDA, BMRDA, LDA	Infrastructure for disaster management	A proactive governing structure that regularly monitors and evaluates the city's land use patterns in accordance with the Town and Country Planning Act	Enhanced resilience of the city's infrastructure	Better planned city leading to better livability and economic efficiency	2026

	DM - 2.5	Encourage disaster-resilient design and construction techniques, especially for critical facilities such as hospitals, fire stations, and schools, informed by the critical disasters identified for Bengaluru as per CCRA-VA to ensure that they remain safe, effective and operational during and after disasters	a. Developing a Disaster Resilience Responsibility Framework, and Preparedness and Response, under the Karnataka State Disaster Management Plan of 2020-21 b. Karnataka State Action Plan for Climate Change and Human Health	P: BBMP	Health sector disaster preparedness and response, and human resource development for emergency medical services	Resilient infrastructure of emergency services	Better access to emergency services	Enhanced resilience of the city's infrastructure	2026
	DM - 2.6	Mainstreaming disaster risk reduction into the city's master plan	Aligned with action no. UPGBD-2.5	P: BDA	RMP 2035	A robust infrastructure system at the planning stage itself, ensuring better preparedness	Resilient city	Reduction in loss and damage during disasters	2031

	DM - 2.7	Conduct an assessment of the impact of climate hazards on public health and the preparedness of the city's health care systems, to manage the same for all segments of the population.	a. Enhance the resilience of State health systems by integrating DRM into primary, secondary and tertiary health care, as per Karnataka State Disaster Management Plan 2020-21 b. Karnataka State Action Plan for Climate Change and Human Health	P: BBMP S: Department of Health	Health sector disaster preparedness and response, and human resource development for emergency medical services	Comprehensive understanding of interlinkage between disasters and health	Well-developed health infrastructure that incorporates disaster-related health risks into its work	Reduction in severe health-related risks due to disasters	2025
	DM - 2.8	Mandate integration of disaster risk management into business models of organisations across the supply chain, to increase business resilience and protection of livelihoods and productive assets throughout the supply chain within the city, across sectors and communities, so as to ensure continuity of services.	a. Karnataka State Disaster Management Plan 2020-21	P: BBMP S: Government and non-government stakeholders	PPP models	Planned businesses that are prepared to handle disruptions due to disasters	Reduction in economic loss during disasters	Better resilience during disasters . Faster recovery from disasters	2026

	DM - 2.9	Encourage private sector participation to promote innovations for solution-driven research technology advancement in disaster risk reduction. PPP model can be adopted to establish, disseminate and share good practices	a. Karnataka State Disaster Management Plan 2020-21 b. Climate-resilient and disaster-safe development	P: BBMP S: Government and non-government research institutes, start-ups, etc.	PPP models	Technological advancement and innovations leading to better management of disasters	Loss and damage reduction	Increased economic efficiency	2027
	DM - 2.10	Create enablers for insurance and other financial protection mechanisms, to reduce the burden of disaster-related financial losses on governments, communities, and individuals	a. Karnataka State Disaster Management Plan 2020-21 b. Manual on administration of State and National Disaster Response Fund	P: BBMP S: Department of Finance	PPP models	An elaborate financial protection mechanism for disasters	Reduction in economic losses during disasters	Better resilience during disasters . Faster recovery from disasters	2026
DM- 3: *Empower citizens, civil society and local platforms to adopt a decentralised and inclusive approach towards DRR.* Goal/Target: Empowered ward committees for better localised preparedness for, response to, and recovery from disasters									

	DM - 3.1	Set up zone- or Ward-level Disaster Management Cells empowered with regulatory and financial means, to work and coordinate with civil society, communities, and other locals in the region, for disaster risk management at the local level. This should include: - Plan of action to improve and strengthen the capacity at the local level - Identification of localised shelters/safe zones that can be accessed by all. - Evacuation of persons living in disaster-prone areas when essential - Prompt action to meet locals' needs when they lack access to services.	a. Karnataka State Disaster Management Plan 2020-21	P: BBMP S: Sector specific departments such as BESCOM, BWSSB, Transport, SWM, Urban Planning, Forestry, and Horticulture	BBMP budget	A local responsible agency will be created for ease of access by local residents	A decentralised approach will be initiated, making wards self-reliant to a great degree	Enhance inclusivity through greater local involvement	2025
	DM - 3.2	Equip local wards with regular and updated information systems to deal with disasters within their ward boundaries.	Karnataka State Disaster Management Plan 2020-21	P: BBMP	BBMP budget	A local responsible agency will be created for ease of access by local residents	A decentralised approach will be initiated, making wards self-reliant to a great degree	Enhance inclusivity through greater local involvement	2025

	DM - 3.3	Establish a local level disaster help and redressal system by setting up community centres that could be a one-point contact for creating public awareness, having the necessary materials to implement rescue and relief activities, and to implement relief measures or compensations that the government proposes.	Karnataka State Disaster Management Plan 2020-21	P: BBMP	BBMP budget	Easy access to local resources, instead of going through a centralised system	Better access to information	Equitable access to a local redressal system	2025
	DM - 3.4	Partner with local SHGs, citizen action groups, NGOs etc., to disseminate information and awareness on disaster preparedness, response and recovery mechanisms.	Karnataka State Disaster Management Plan 2020-21	P: BBMP S: Local citizen action groups, NGOs, SHGs etc	BBMP budget	A well networked governance system with local groups	Better access to information and faster response and recovery	Enhance inclusivity and equitable access through a decentralised system	2026
DM- *4:* *Enhance ecosystem capacity to reduce disaster risk through better response* Goal/Target: Reduction in loss of life, livelihoods, and assets due to climate and environmental hazards									
	DM - 4.1	Conduct regular capacity-building workshops and training for personnel across agencies responsible for disaster response and strengthen their logistical capacities to better respond to disasters.	a. Karnataka State Disaster Management Plan 2020-21 b. DC Handbook on Climate Resilience	P: BBMP S: KSDMA	BBMP budget	Greater awareness amongst locals on better management of disasters	Better preparedness by residents to deal with disasters	Overall increase in local confidence in the ability to manage efficiently and inclusively during disasters	2024

	DM - 4.2	Regular sensitising workshops in ward committees and relevant stakeholders at ward levels on disaster management.	Karnataka State Disaster Management Plan 2020-21	P: BBMP S: KSDMA	BBMP budget	Greater awareness amongst locals on better management of disasters	Better preparedness by residents during disasters	Overall increase in local confidence in the ability to manage efficiently and inclusively during disasters	2024
	DM - 4.3	Create localised knowledge repository on disasters through expediential sharing across different stakeholders.	Karnataka State Disaster Management Plan 2020-21	P: BBMP S: KSNDMC, KSDMA and other stakeholders such as research institutes, local citizens' groups, etc.	BBMP budget	A detailed and inclusive knowledge repository system for sharing	Means and mechanism for knowledge-sharing, creating a comprehensive knowledge base at the ward level	Greater awareness and understanding of localconcerns	2025