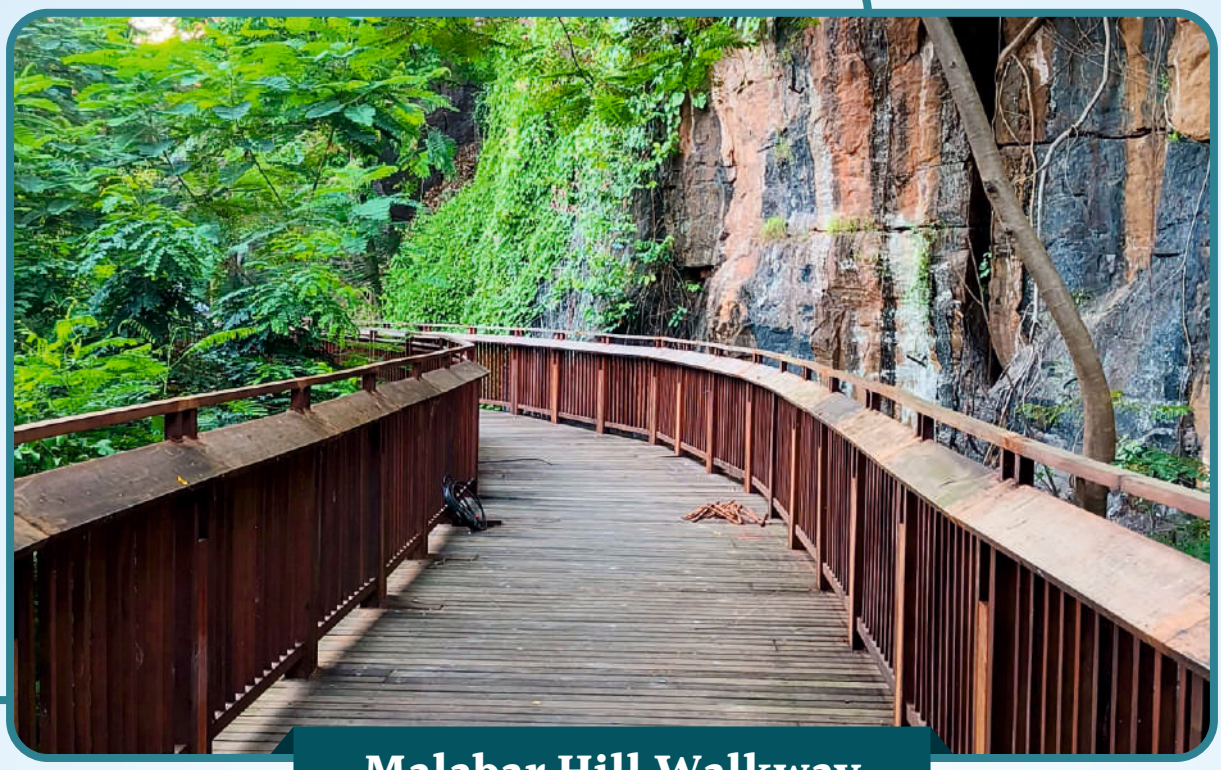
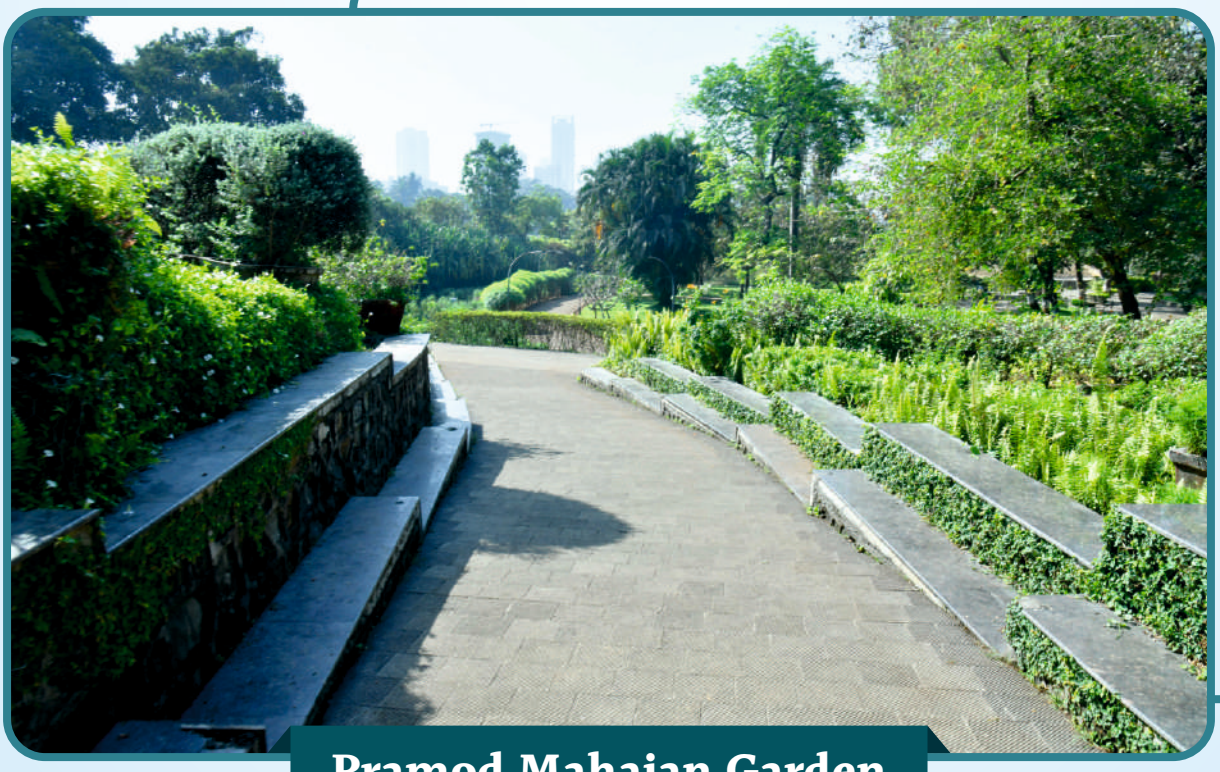
Brihanmumbai Municipal Corporation

ENVIRONMENT STATUS REPORT
2024 - 2025



Malabar Hill Walkway



Pramod Mahajan Garden

ENVIRONMENT STATUS REPORT

2024 – 2025

SCIENTIST IN-CHARGE

AIR QUALITY MONITORING & RESEARCH LABORATORY,

MUNICIPAL MARKET OFFICE BUILDING, NEW PARAMOUNT CHS, TILAK ROAD,

SANTACRUZ (WEST), MUMBAI-400 054.

Email: sicaqmrl.envcc@mcgm.gov.in | aqmrldata@gmail.com.

मार्गदर्शक

श्री. अविनाश काटे
प्रमुख अभियंता
पर्यावरण व वातावरणीय बदल विभाग

श्री. विकास दि. सामंत
उप प्रमुख अभियंता
पर्यावरण व वातावरणीय बदल विभाग

संकलन व निर्मिती

श्री. मनोहर चर्जे
प्रभारी वैज्ञानिक शास्त्रज्ञ,
वा.वै.स. व सं. प्रयोगशाळा

श्री. नितिन बोरसे
वरिष्ठ वैज्ञानिक अधिकारी,
वा.वै.स. व सं. प्रयोगशाळा

SCIENTIST IN-CHARGE
AIR QUALITY MONITORING & RESEARCH LABORATORY,
MUNICIPAL MARKET OFFICE BUILDING, NEW PARAMOUNT CHS, TILAK ROAD,
SANTACRUZ (WEST), MUMBAI-400 054.
Email: sicaqmrl.envcc@mcgm.gov.in | aqmrldata@gmail.com.

TABLE OF CONTENTS

भूषण गगराणी
भा. प्र. से.
महानगरपालिका आयुक्त
बृहन्मुंबई महानगरपालिका

मनोगत

सन २०२४-२५ या वर्षाचा बृहन्मुंबई 'पर्यावरण स्थितीदर्शक अहवाल' मुंबईकरांना सादर करताना मला अत्यंत आनंद होत आहे.

अद्ययावत सुधारित मुंबई महानगरपालिका अधिनियम, १८८८ मधील कलम ६१ (अ, ब) नुसार, महानगरातील वने, पर्यावरणाचे संरक्षण व निसर्गाचे संवर्धन करणे, हे बृहन्मुंबई महानगरपालिकेचे कर्तव्य आहे. महानगरपालिकेच्या पर्यावरण व वातावरणीय बदल विभागामार्फत बृहन्मुंबई 'पर्यावरण स्थितीदर्शक अहवाल' दरवर्षी तयार करण्यात येतो. सदर अहवालात बृहन्मुंबईतील पर्यावरणाचा मागील वर्षाचा (दिनांक १ एप्रिल २०२४ - दिनांक ३१ मार्च २०२५) चिकित्सक दृष्टिने सविस्तर आढावा घेण्यात आलेला आहे. त्याबरोबरच महानगराच्या पर्यावरण संवर्धनासाठी भविष्यातील शासकीय, अशासकीय संस्थांच्या कार्याचा तसेच महानगरपालिकेच्या पर्यावरणस्नेही योजना व उपक्रमांचा देखील यात परामर्श घेण्यात आलेला आहे.

मुंबई महानगराचा सर्वांगीण विकास करणे, हे स्थानिक स्वराज्य संस्था या नात्याने बृहन्मुंबई महानगरपालिकेचे मूलभूत कर्तव्य आहे. हे कर्तव्य बजावत असताना महानगरात निर्माण होणाऱ्या पर्यावरणीय समस्यांवर उपाययोजना करुन पर्यावरणाचे संरक्षण करणे, हेदेखील तितकेच महत्वाचे आहे. शहरातील बहुविध विकास कामे करताना अनेक नवीन प्रकल्प उभारावे लागतात. तसेच, नागरिकांना विविध पायाभूत सुविधा उपलब्ध करुन द्याव्या लागतात. हे सर्व करीत असताना याचा प्रत्यक्ष वा अप्रत्यक्षपणे पर्यावरणावर परिणाम होत असतो. ही सर्व स्थिती दर्शविण्यासाठी 'पर्यावरण स्थितीदर्शक अहवाल' तयार करणे व महानगरपालिकेस सादर करणे गरजेचे आहे.

बृहन्मुंबई महानगरपालिकेच्या विविध विभागांनी सन २०२४-२५ मध्ये अनेक प्रकल्प हाती घेतले. त्यापैकी अनेक प्रकल्प कामे पूर्ण झाली आहेत. तर, काही कामे प्रगतिपथावर आहेत. यामध्ये धर्मवीर स्वराज्यरक्षक छत्रपती संभाजी महाराज मुंबई किनारी रस्ता, घनकचरा व्यवस्थापन, पाणीपुरवठा, वर्षा संचयन विनियोग, पर्जन्य जलवाहिन्या, मलनिःसारण प्रकल्प, आरोग्य, रस्ते व वाहतूक, बेस्ट उपक्रम, शिक्षण, उद्यान व प्राणिसंग्रहालय, पर्यावरण व वातावरणीय बदल, आपत्कालीन व्यवस्थापन, इत्यादी विभागांचा समावेश आहे. बृहन्मुंबई महानगरपालिकेचे सर्व संबंधित विभाग पर्यावरण संरक्षणासाठी व संवर्धनासाठी कटिबद्ध आहेत.

पर्यावरण स्थितीदर्शक अहवालाच्या अनुषंगाने मला असे निदर्शनास आणून द्यावयाचे आहे की, बृहन्मुंबई महानगरपालिकेच्या घनकचरा व्यवस्थापन विभागामार्फत विविध प्रकल्प, उपक्रम व मोहिमा राबवून मुंबई महानगरातील स्वच्छतेची काळजी घेतली जाते. महानगरात दैनंदिन निर्माण होणाऱ्या कचऱ्याची वर्गवारी व प्रमाणानुसार विभागणी करुन ओला व सुका कचरा स्वतंत्रपणे क्षेपणभूमीवर वाहून नेला जातो. तसेच सदर कचऱ्यावर कांजूरमार्ग क्षेपणभूमीवर शास्त्रोक्त पद्धतीने (बायोरिॲक्टर व विंड्रो कंपोस्टिंग) प्रक्रिया केली जाते. उर्वरित कचऱ्याची विल्हेवाट लावताना देवनार क्षेपणभूमीवर पारंपरिक पद्धतीने कचरा टाकून सपाटीकरण केले जाते. 'सखोल स्वच्छता' (डिप क्लिनिंग) उपक्रम अंतर्गत महानगरातील एका प्रभागामध्ये सर्व यंत्रणा आणून व्यापक स्वच्छता करण्यात येते. महानगरातील पर्यावरण समतोल राखण्यासाठी या मोहिमेस मुंबईकर नागरिकांकडून उत्स्फूर्त सहभाग व प्रतिसाद मिळाला, याचा मला अभिमान आहे.

मुंबई महानगरातील समस्यांपैकी एक म्हणजे वाहनांची वाढती संख्या, पर्यायाने उद्भवणारे वायू प्रदूषण आणि वाहतूक कोंडी होय. मुंबईतील वाहनांच्या संख्येत सन २०२३-२४ च्या तुलनेत सन २०२४-२५ मध्ये अंदाजे ६.२ टक्के इतकी वाढ झालेली

आहे. मार्च २०२५ अखेरपर्यंत मुंबईतील विविध वाहनांची एकूण संख्या ५०,५४,९१६ एवढी प्रचंड आहे. वाहनांची वाढती संख्या ही महानगरातील वायू व ध्वनी प्रदूषण वाढण्यास कारणीभूत ठरत आहे. मुंबईकरांनी सार्वजनिक वाहतुकीचा वापर करुन पर्यावरणपूरक वातावरण जपण्यास मदत करावी, अशी अपेक्षा आहे.

बृहन्मुंबई विद्युत पुरवठा आणि परिवहन अर्थात 'बेस्ट' हा मुंबई महानगरातील नागरिकांसाठी सार्वजनिक वाहतूक आणि वीज पुरवठ्यातील सार्वजनिक उपक्रम आहे. मुंबईला स्वच्छ-सुंदर आणि प्रदूषणमुक्त करण्यासाठी 'बेस्ट' उपक्रमाने आपल्या ताफ्यात पर्यावरणपूरक अशा बसेस समाविष्ट केलेल्या आहेत. यामध्ये कॉम्प्रेस्ड नॅचरल गॅस (सीएनजी) वर धावणाऱ्या ५८.१५ टक्के तर विद्युत भारीत ऊर्जेवरील (इलेक्ट्रिक) ३२.९५ टक्के बसेस आहेत. सन २०२६ अखेरपर्यंत 'बेस्ट' उपक्रमाच्या ताफ्यात ५० टक्केपेक्षा जास्त विद्युत बसेसचा ताफा असेल. तर, सन २०२९ पर्यंत 'बेस्ट' उपक्रमाचा संपूर्ण ताफा हा विद्युत बसेसचा असेल. त्याबरोबरच 'बेस्ट' उपक्रमाद्वारे विद्युत वाहनांना प्रोत्साहन देण्यासाठी मुंबई शहर आणि उपनगरात ऑटोरिक्षा, खासगी वाहन, डिलिव्हरी वाहन आणि विद्युत बसेससाठी ५५ ठिकाणी 'खासगी चार्जिंग स्टेशन' स्थापित करण्यात आलेली आहेत. त्यामुळे वातावरणातील कार्बन डायऑक्साईडचे उत्सर्जन कमी होऊन पर्यावरण संवर्धनास चालना मिळेल, अशी मला आशा आहे.

मुंबई महानगरात कमी वेळेत जास्त प्रमाणात पडणारा पाऊस, विविध प्रकारच्या अवजड वाहनांची वर्दळ, वाहतूक घनता, विविध प्राधिकरणे / संस्था यांनी उपयोगिता सेवा पुरविण्यासाठी खोदलेल्या चरी, अशा विविध कारणास्तव रस्त्यांची अवस्था बिकट होते. या परिस्थितीवर मात करण्यासाठी महानगरातील डांबरी / पेवर ब्लॉकचे सर्व रस्ते, काँक्रिटमध्ये परावर्तित करण्याचे शासनाचे निर्देश आहेत. त्यानुसार, बृहन्मुंबई महानगरपालिकेच्या महत्त्वाकांक्षी रस्ते सिमेंट काँक्रिटीकरण प्रकल्पाच्या टप्पा १ आणि टप्पा २ अंतर्गत दिनांक ३१ मे २०२५ अखेर एकूण १,३८५ रस्त्यांचे मिळून ३४२.७४ किलोमीटर लांबीचे काँक्रिटकरण पूर्ण करण्यात आले आहे. या अंतर्गत, ७७१ रस्त्यांचे एकूण १८६ किलोमीटर लांबीचे काम १०० टक्के पूर्णत्वास गेले आहे. तर, ६१४ रस्त्यांवर चौक ते चौक (Junction to Junction) अथवा अर्ध्या रुंदी पर्यंत (Half Width) याप्रमाणे मिळून एकूण १५६.७४ किलोमीटर लांबीचे काँक्रिटीकरण पूर्ण करण्यात आले आहे. हे सर्व रस्ते वाहतुकीस खुले करण्यात आले आहेत. सिमेंट काँक्रिटीकरणामुळे महानगरातील रस्ते, खड्डेमुक्त होऊन वाहतूक सुरळीत व सुरक्षित होण्याबरोबरच वाहनाच्या इंधनात व वेळेत बचत होण्यास मदत होईल.

मलनिःसारण प्रकल्प, मलजल वाहिन्या याबाबत हाती घेण्यात आलेल्या व पूर्ण झालेल्या कामांची माहिती या अहवालात नमूद करण्यात आलेली आहे. यासंदर्भात मला एवढेच निदर्शनास आणून द्यावयाचे आहे की, भूमिगत पर्जन्य जलवाहिन्या तसेच खोल प्रवेशिका (चेंबर्स) मध्ये मनुष्य प्रवेश करुन स्वच्छता करता येणे शक्य नसते. अशा ठिकाणी नाल्यांच्या स्वच्छतेसाठी अद्ययावत संयंत्रांचा उपयोग करण्यात येतो. तसेच, रस्त्यांलगतच्या पर्जन्य जलवाहिन्या रॉडींग व ड्रेजरर्स वापरुन स्वच्छ केल्या जातात. उपनगरातील मोठ्या नाल्यांची स्वच्छता जेसीबी, पोकलेन इत्यादी संयंत्रांद्वारे केली जाते. त्यामुळे, महानगरात पावसाळ्यात पाणी साचणार नाही, याची पुरेपूर काळजी महानगरपालिकेद्वारे घेण्यात आली आहे.

पर्यावरणाचा समतोल राखणे, वायू प्रदूषण टाळणे आणि 'हरित मुंबई, सुंदर व स्वच्छ मुंबई' साकारण्याकरिता मुंबई शहर व उपनगरात वृक्षारोपण करणे, नागरिकांसाठी उद्याने परिरक्षित करणे, क्रीडांगणे, करमणुकीची केंद्रे, कारंजे, इत्यादी सोयी-सुविधा पुरविणे, यासाठी बृहन्मुंबई महानगरपालिका सदैव प्रयत्न करीत आहे.

सांडपाण्यावर प्रक्रिया करून उपलब्ध झालेले पाणी औद्योगिक आणि पिण्याव्यतिरिक्तच्या वापरासाठी उपलब्ध करता येईल, यावर बृहन्मुंबई महानगरपालिकेने भर दिला आहे. त्या अनुषंगाने, मलजल प्रक्रिया केंद्राची पुनर्बांधणी/ बांधणी, मलजल उदंचन केंद्रांची पुनर्बांधणी आणि मलजल बोगद्यांचे बांधकाम यासारख्या विविध प्रकल्पांची कामे हाती घेण्यात आली आहेत. महानगरातील वरळी, वांद्रे, मालाड, घाटकोपर, धारावी, भांडूप, वेसावे (वर्सोवा) या सात मलजल प्रक्रिया केंद्रांची उभारणी पूर्ण झाल्यानंतर प्रतिदिन एकूण २,४६४ दशलक्ष लीटर क्षमतेने मलजलावर प्रक्रिया होऊन पिण्याच्या व्यतिरिक्त इतर वापरासाठी पाण्याचा पुनर्वापर शक्य होणार आहे.

मुंबई महानगरपालिका अधिनियम १८८८ च्या कलम ६१ (क्यू) नुसार, प्राथमिक शिक्षणाची सुविधा मुलांना उपलब्ध करून देणे, हे महानगरपालिकेचे बंधनकारक कर्तव्य आहे. ही जबाबदारी सन १९०७ पासून बृहन्मुंबई महानगरपालिकेचा शिक्षण विभाग पार पाडत आहे. पर्यावरण संतुलन राखण्यासाठी महानगरपालिकेच्या शाळांमधून विविध पर्यावरणस्नेही उपक्रम राबविले जात आहेत. यामध्ये 'माझी शाळा सुंदर शाळा' या मोहीम अंतर्गत शाळा परिसरात वृक्षारोपण आणि वृक्षसंवर्धन

करण्यात येते. 'एक झाड, माझी जबाबदारी' या उपक्रमातून लोकसहभागाद्वारे समाजात पर्यावरणविषयक जनजागृती निर्माण करण्याचा प्रयत्न शिक्षण विभागामार्फत करण्यात येत आहे. यासोबतच माझी वसुंधरा, सुका कचरा व ओला कचरा वर्गीकरण, पाण्याचा योग्य वापर, स्काऊट गाईड, हाऊसकिपिंग, संगीत आणि कला इत्यादी उपक्रमांद्वारे विद्यार्थ्यांचा निसर्गाशी संवाद साधण्याचे जाणीवपूर्वक प्रयत्न केले जात आहेत.

बृहन्मुंबई महानगरपालिका सार्वजनिक आरोग्य क्षेत्रात दर्जेदार सुविधा पुरवित आहे. कोणत्याही आपत्तीच्या वेळी महानगरपालिकेची रुग्णालये सदैव सज्ज असतात. महानगरातील सार्वजनिक आरोग्याची स्थिती हाताळण्याचे काम मुख्यतः महानगरपालिकेचे असले तरी यामध्ये खासगी संस्थांचाही हातभार लागतो. महानगरपालिकेकडून तीन स्तरावर आरोग्य संसाधनांची व्यवस्था करुन मुंबईकरांच्या आरोग्याची काळजी घेण्यात येते. यामध्ये आरोग्य केंद्रे, दवाखाने, प्रसूतिगृहे, सर्वसाधारण रुग्णालये, विशिष्ट रुग्णालये व मुख्य रुग्णालयांचा समावेश आहे. महानगरपालिकेच्या आरोग्य विभागाद्वारे संसर्गजन्य रोग, कुष्ठरोग निर्मूलन, एड्स नियंत्रण, लैंगिक व प्रजनन आरोग्य सुविधा, रक्त सुरक्षा कार्यक्रम तसेच अस्थमा समुपदेशन यांसारख्या आरोग्य सुविधा उपलब्ध करुन मुंबईकरांच्या आरोग्याची काळजी घेण्याचे काम बृहन्मुंबई महानगरपालिका अविरतपणे प्रयत्न करीत आहे.

बृहन्मुंबईतील आपत्कालीन परिस्थिती प्रभावीपणे हाताळण्याकरिता आपत्कालीन व्यवस्थापन कक्ष आधुनिक सेवा-सुविधांनी सुसज्ज करण्यात आला आहे. आपत्कालीन व्यवस्थापन विभागाची अणीबाणी कृती केंद्रे, स्वयंचलित हवामान दर्शक संयंत्रे, प्रवाह पातळी संवेदक याद्वारे आपत्कालीन नियंत्रण कक्षास अद्ययावत व वास्तविक माहिती उपलब्ध होते. याबरोबरच, कोणत्याही आपत्तीदरम्यान जलद व प्रभावी प्रतिसाद देणे, प्रतिसाद देणाऱ्या सर्व यंत्रणांमध्ये समन्वये राखणे, आपत्तीशी संबंधित माहिती नागरिकांना तात्काळ पुरविणे, सर्व स्तरांवर तयारीकरीता प्रोत्साहन देणे, आपत्कालीन परिस्थितीत सर्व बाधितांना सहाय्य करणे तसेच अपेक्षित व अनपेक्षित अणीबाणीसंदर्भात नागरिकांना सतर्क करणे इत्यादी सेवा मुंबईकरांना तात्काळ उपलब्ध करुन देण्यात येतात. यावरुन आपत्कालीन परिस्थितीचा सामना करण्यासाठी बृहन्मुंबई महानगरपालिका समर्थ असल्याचे स्पष्ट होते.

सध्या जगभरात वातावरणीय बदलामुळे अनेक समस्यांचा सामना करावा लागतो आहे. ऋतूमानात होणाऱ्या अचानक बदलामुळे पर्यावरणामध्ये असमतोल निर्माण होऊन पर्यावरणाचे दुष्परिणाम, जल प्रदूषण, वायू प्रदूषण, ध्वनी प्रदूषण याबरोबरच अवकाळी पाऊस, अतिपर्जन्यवृष्टी, चक्रीवादळ, भूकंपाचे हादरे, भूस्खलन, तापमानवाढ इत्यादी नैसर्गिक आपत्तींना सामोरे जावे लागते. हवामान बदलाच्या या पार्श्वभूमीवर, ऊर्जा बचत करणे, सार्वजनिक वाहतुकीच्या साधनांचा वापर करणे, प्लास्टिक-थर्मोकॉलपासून निर्मित वस्तूंचा वापर टाळणे, पाण्याची बचत करणे, मोकळ्या जागेत इतरत्र कचरा न जाळणे, आपला परिसर प्रदूषणमुक्त व स्वच्छ ठेवणे, सुजाण नागरिक या नात्याने आपण हे सहज करु शकतो. अशा सहज करता येणाऱ्या सवयींविषयी मुंबईकरांमध्ये नक्कीच जागरुकता निर्माण होईल, अशी मला अपेक्षा आहे.

मला खात्री आहे की, येणाऱ्या काही वर्षांमध्ये बृहन्मुंबई महानगरपालिकेच्या विविध खात्यांनी हाती घेतलेले प्रकल्प व योजना पूर्ण झाल्यावर, मुंबईकरांना स्वच्छ व आरोग्यदायी पर्यावरण निश्चितच उपलब्ध होईल. शेवटी नागरिकांचा पाठिंबा आणि सहकार्य यावर हे सर्व अवलंबून आहे. हे चैतन्यदायी महानगर स्वच्छ, सुंदर आणि हरित राखण्यामध्ये सुजाण मुंबईकरांचा सहभाग सदैव राहील, अशी मला आशा आहे.

धन्यवाद!

भूषण गगराणी
महानगरपालिका आयुक्त तथा प्रशासक
बृहन्मुंबई महानगरपालिका, मुंबई

डॉ. अश्विनी जोशी
भा. प्र. से.
अतिरिक्त महानगरपालिका आयुक्त (शहर)
बृहन्मुंबई महानगरपालिका

मनोगत

अद्ययावत सुधारित मुंबई महानगरपालिका अधिनियम, १८८८ मधील कलम ६३ (ब) च्या तरतुदीनुसार, बृहन्मुंबई 'पर्यावरण स्थितीदर्शक अहवाल' तयार करुन दरवर्षी ३१ जुलैपूर्वी महानगरपालिकेस सादर करणे अनिवार्य आहे. अद्ययावत सुधारित मुंबई महानगरपालिका अधिनियम, १८८८ मधील कलम ६ (क) (१) अन्वये महानगरपालिका आणि महानगरपालिकेच्या इतर प्राधिकरणांचे सर्व अधिकार सध्या प्रशासकांकडे निहित असल्याने सन २०२४-२५ या वर्षाचा बृहन्मुंबई 'पर्यावरण स्थितीदर्शक अहवाल' माननीय महानगरपालिका आयुक्त यांच्यामार्फत मुंबईकरांना सादर करताना मला अत्यंत आनंद होत आहे.

पर्यावरण संरक्षण ही आजची महत्त्वाची गरज आहे, त्या अनुषंगाने केंद्र शासनाने नैसर्गिक साधन संपत्ती व पर्यावरणातील घटकांचे संरक्षण व संवर्धन करण्यासाठी काही अधिनियम पारित केलेले आहेत. जसे की, जल (प्रदूषण प्रतिबंध व नियंत्रण) अधिनियम-१९७४, वायू (प्रदूषण प्रतिबंध व नियंत्रण) अधिनियम-१९८१, पर्यावरण (संरक्षण) अधिनियम-१९८६ या अधिनियमांच्या अंतर्गत काही नियम तयार करण्यात आले आहेत. यामध्ये हानिकारक टाकाऊ पदार्थ (व्यवस्थापन व हाताळणी) नियम-२०००, घनकचरा व्यवस्थापन अधिनियम-२०१६, जैववैद्यकीय कचरा व्यवस्थापन व हाताळणी नियम-२०१६, ई-कचरा (व्यवस्थापन) नियम-२०१६, प्लास्टिक कचरा (व्यवस्थापन) नियम-२०१६ इत्यादींचा समावेश आहे. सदर अधिनियमांची योग्य अंमलबजावणी करणे व महानगरातील वायू प्रदूषण कमी करण्याच्या दृष्टीने, राज्य शासनाच्या पर्यावरण व वातावरणीय बदल विभागाच्या मार्गदर्शन व सहकार्याने तसेच महाराष्ट्र प्रदूषण नियंत्रण मंडळाच्या मदतीने, बृहन्मुंबई महानगरपालिका सतत प्रयत्नशील आहे.

बृहन्मुंबई महानगरपालिका ही नागरी संस्था असून मुंबई महानगरातील पर्यावरणीय समतोल राखण्यास कटिबद्ध आहे. केंद्र शासनाच्या पर्यावरण, वने व वातावरणीय बदल मंत्रालयामार्फत जानेवारी २०१९ मध्ये राष्ट्रीय 'स्वच्छ वायू कार्यक्रम' (NCAP) हा उपक्रम सुरू करण्यात आला. बृहन्मुंबई महानगरपालिका स्तरावर सदर उपक्रमाची यशस्वी अंमलबजावणी होण्याच्या दृष्टीने 'पर्यावरण व वातावरणीय बदल' या विभागाची स्थापना करण्यात आली.

महानगरातील वायू प्रदूषण कमी करण्यासाठी केंद्रीय प्रदूषण नियंत्रण मंडळ आणि महाराष्ट्र प्रदूषण नियंत्रण मंडळाच्या मार्गदर्शक तत्त्वानुसार, 'मुंबई वायू प्रदूषण नियंत्रण कृती आराखडा' तयार करण्यात आला. सदर कृती आराखड्यास केंद्रीय प्रदूषण नियंत्रण मंडळातर्फे ऑक्टोबर २०१९ मध्ये मंजूरी प्राप्त झाली. कृती आराखड्यातील मार्गदर्शक तत्त्वांनुसार, सन २०२४ पर्यंत धूलिकणयुक्त प्रदूषण (Particulate Matter) २०-३० टक्क्यांनी कमी करण्याचे उद्दिष्ट होते. तसेच, सन २०२६ पर्यंत धूलिकणयुक्त प्रदूषण ४० टक्क्यांनी कमी करण्याचे सुधारित लक्ष्य निर्धारित करण्यात आले आहे. यामध्ये, देखरेखीचे जाळे (Monitoring Network) मजबूत करणे, वाहनांचे आणि औद्योगिक उत्सर्जन कमी करणे, पर्यावरणाप्रती जनजागृती वाढविणे यासारख्या उपाययोजनांचा समावेश आहे.

समुद्रकिनारी वसलेल्या या महानगरास वातावरणीय बदलामुळे अवकाळी पाऊस, अतिवृष्टी, अवर्षण, उष्णतेच्या लाटा, नागरी प्रदूषण अशा विविध समस्यांना तोंड द्यावे लागत आहे. या पार्श्वभूमीवर, वातावरणातील बदलांना रोखण्यासाठी बृहन्मुंबई महानगरपालिकेने 'सी – ४० सिटीज् नेटवर्क' आणि 'वर्ल्ड रिसोर्सेस इन्स्टिट्यूट ऑफ इंडिया' यांच्या सहकार्याने 'मुंबई वातावरण कृती आराखडा- २०२२' तयार केला. सदर आराखड्यात सन २०५० पर्यत हरितगृह वायुंचे उत्सर्जन निव्वळ शून्य (नेट-झिरो) पातळीपर्यंत आणण्याचे उद्दिष्ट निर्धारित करण्यात आले आहे. या महत्त्वाकांक्षी आराखड्याच्या अनुषंगाने व आधारभूत

मूल्यमापन कृती वाटचालीशी संबंधित उर्जा आणि इमारती, शाश्वत वाहतूक, शाश्वत कचरा व्यवस्थापन, नागरी हरितीकरण व जैवविविधता, हवेचा दर्जा तसेच नागरी पूरस्थिती व जलस्रोत व्यवस्थापन ही सहा मुख्य क्षेत्रे निश्चित करण्यात आलेली आहेत.

आर्थिक वर्ष २०२४-२५ मध्ये 'वातावरणीय अर्थसंकल्प अहवाल' सादर करणारी बृहन्मुंबई महानगरपालिका ही देशातील पहिली महानगरपालिका ठरली आहे. मुंबईतील हरितगृह वायू उत्सर्जन कमी करणे व वातावरण अनुकूलतेच्या धोरणांना अधिक चांगल्या प्रकारे अंतर्भूत करण्यासंबंधीची पॅरिस करारातील उद्दिष्टे साध्य करण्यासाठी 'मुंबई वातावरण कृती आराखडा-२०२२' हा दिशादर्शक आहे. वातावरणीय बदलासंबंधी विविध स्वरुपातील आपत्तींना आपण सामोरे जात आहोत. या आपत्तींचा सामना करण्यासाठी, आपले भविष्य सुरक्षित करण्यासाठी बृहन्मुंबई महानगरपालिकेतर्फे जाणीवपूर्वक पावले उचलली जात आहेत. मुंबई वातावरण कृती आराखड्याचा आधार घेऊन वातावरणविषयक लक्ष्य साध्य करण्याची गती वाढवण्याचा प्रयत्न या वातावरणीय अर्थसंकल्प प्रक्रियेद्वारे करण्यात आलेला आहे.

महानगरातील पायाभूत सुविधा प्रकल्प, उद्योगधंदे, वाहतुकीची वर्दळ, पारंपरिक इंधन वापर, इमारतींचे बांधकाम व पाडकाम इत्यादी घटकांद्वारे होणाऱ्या उत्सर्जनामुळे प्रदूषणात वाढ झाल्याचे आढळून येते. मुंबई महानगरात ऑक्टोबर ते फेब्रुवारी (हिवाळा ऋतू) या कालावधीत नैसर्गिकरित्या प्रदूषणात वाढ होत असते. अशा परिस्थितीत वाढत्या वायू प्रदूषणाची पातळी नियंत्रित करण्यासाठी व प्रदूषणकारी घटकांना वेळीच अटकाव करण्यासाठी महानगरपालिकेने 'मुंबई वायू प्रदूषण शमन योजना-२०२३' तयार केली आहे. या योजनेच्या अनुषंगाने, वायू प्रदूषणाचे स्त्रोत ओळखणे, स्रोतनिहाय यादी तयार करणे, प्रकल्पांचे वर्गीकरण, अंमलबजावणी यंत्रणा व देखरेख यंत्रणा विकसित करणे, नियमांचे पालन न केल्यास दोषींवर कारवाई करणे, पुनरावलोकन यंत्रणा विकसित करणे व सुधारात्मक आढावा घेऊन लक्ष्य साध्य करणे इत्यादी बाबींची काटेकोरपणे अंमलबजावणी विभाग स्तरावर करण्यात येत आहे. वायू प्रदूषण शमन योजनेच्या अनुषंगाने, महानगरपालिकेच्या हद्दीत असलेल्या विविध नियोजन प्राधिकरण व इतर शासकीय विभागांच्या सहकार्याने मुंबई महानगरातील वायू प्रदूषण नियंत्रणात आणण्यासाठी जाणीवपूर्वक प्रयत्न केले जात आहेत.

मला येथे असेही निदर्शनास आणून द्यावयाचे आहे की, मुंबईतील वायू प्रदूषण व वातावरण बदलांमुळे हवेची खालावलेली गुणवत्ता सुधारण्यासाठी बृहन्मुंबई महानगरपालिकेतर्फे दिनांक १५ ऑक्टोबर २०२४ रोजी 'सुधारित २८ मुद्द्यांची मार्गदर्शक तत्त्वे' निर्गमित करण्यात आली. सर्व संबंधित यंत्रणांसाठी ही मार्गदर्शक तत्वे अनिवार्य आहेत. त्यांचे अत्यंत काटेकोरपणे पालन करण्यात यावे अन्यथा कठोर कारवाई करण्याचे सक्त निर्देश महानगरपालिकेने दिलेले आहेत. केंद्र शासन, महाराष्ट्र शासन तसेच इतर संस्थांनी प्रदूषणाशी निगडित बाबींवर संयुक्तरित्या सहकार्य केल्यास मुंबईतील वायू प्रदूषणावर प्रभावी नियंत्रण आणण्यासाठी निश्चितच मदत होईल, अशी मला आशा आहे.

उपरोक्त विविध स्तरावरील प्रयत्नांद्वारे महानगरातील पर्यावरण समतोल, रक्षण व संवर्धनासाठी बृहन्मुंबई महानगरपालिका कटिबद्ध आहे. शासन व स्थानिक स्वराज्य संस्थेबरोबरच पर्यावरण संरक्षणाची जबाबदारी नागरिक, स्वयंसेवी संघटना, प्रसारमाध्यमे व समाजातील सर्व संघटना, इतर घटक यांचीही आहे. 'हरित, सुंदर व स्वच्छ मुंबई'चे स्वप्न साकार होण्यासाठी सुजाण मुंबईकरांचा, सर्व घटकांचा सदैव सहभाग राहील, याची मला खात्री आहे.

धन्यवाद!

डॉ. अश्विनी जोशी
अतिरिक्त महानगरपालिका आयुक्त (शहर)
बृहन्मुंबई महानगरपालिका, मुंबई

राजेश चंद्रकांत ताम्हाणे
उप आयुक्त
(पर्यावरण व वातावरणीय बदल)
बृहन्मुंबई महानगरपालिका

आभार / अभिस्विकृती

'बृहन्मुंबई महानगरपालिका पर्यावरण स्थितीदर्शक अहवाल' तयार करण्यासाठी व विविध पर्यावरण पूरक उपक्रम राबविण्यासाठी वेळोवेळी केलेल्या मार्गदर्शनाबद्दल मा. महानगरपालिका आयुक्त तसेच मा. अतिरिक्त महानगरपालिका आयुक्त (पश्चिम उपनगरे) यांचे मी मनःपूर्वक आभार मानतो.

त्याचप्रमाणे महाराष्ट्र प्रदूषण नियंत्रण मंडळ, मुंबई विद्युत पुरवठा व परिवहन, महाराष्ट्र राज्य परिवहन खाते, राष्ट्रीय केमिकल्स ॲण्ड फर्टिलाइजर्स लिमिटेड, भारत पेट्रोलिअम कापेरिशन लि., टाटा पॉवर, मुंबई पोर्ट ट्रस्ट, अदानी इलेक्ट्रिसिटी मुंबई लिमिटेड,कांदळवन कक्ष आणि बृहन्मुंबई महानगरपालिकेचे विविध विभाग या सर्वांकडून माहिती उपलब्ध झाली. त्याबद्दल त्यांचा मी मनस्वीः आभारी आहे.

राजेश ताम्हाणे
महानगरपालिका उप आयुक्त
(पर्यावरण व वातावरणीय बदल)
बृहन्मुंबई महानगरपालिका मुंबई

ACRONYMS

ALM	Advanced Locality Management
AMR	Automatic Meter Reading
AQI	Air Quality Index
ATC	Area Traffic Control
BEST	Brihanmumbai Electric Supply and Transport
BMC	Brihanmumbai Municipal Corporation
BOD	Bio-chemical Oxygen Demand
BRIMSTOWAD	Brihanmumbai Strom Water Drain
CAAQMS	Continuous Ambient Air Quality Monitoring Station
CDRF	City Disaster Rapid Force
CNG	Compressed Natural Gas
CPCB	Central Pollution Control Board
CRZ	Coastal Regulatory Zone
DO	Dissolved Oxygen
dB	Decibels (Unit of sound measurement)
DCB	Development Control Regulation
EIA	Environment Impact Assessment
EMP	Environment Mitigation Programme
ETP	Environment Treatment Plant
FSI	Floor Space Index
FC	Fecal Coliform
GVM	Gross Vehicle Weight
IEC	Information Communication and Education
IPS	Influent Pumping Station
Km	Kilometer
LCPD	Liters per capita per day
MCAP	Mumbai Climate Action Plan
MMRDA	Mumbai Metropolitan Regional Development Authority
MOH	Medical Officer, Health
MPCB	Maharashtra Pollution Control Board
MSEB	Maharashtra State Electricity Board
MHADA	Maharashtra Housing And Area Development Authority

ACRONYMS

MLD	Million Liters Per Day
Mm	Millimeter
MMC	Mumbai Municipal Corporation Act
MEIP	Metropoliton Environment Improvement Programme
MSDP	Mumbai Sewage Disposal Project
MTPD	Metric Tonnes Per Day
MVA	Mega Volt Ampere
MSRDC	Maharashtra State Road Development Corporation
MUIP	Mumbai Urban Infrastructure Project
MUTP	Mumbai Urban Transport Project
NEERI	National Environment Engineering Research Institute
NGO	Non Governmental Organization
PAH	Polynuclear Aromatic Hydrocarbon
PUC	Pollution Under Control
PSI	Pollution Standard Index
RTO	Regional Transport Office
RSP	Respirable Suspended Particulate
SSP	Slum Sanitation Programme
SPM	Suspended Particulate Matter
STP	Sewage Treatment Plant
SW I	Seawater Criteria I
SW II	Seawater Criteria II
SWD	Storm Water Drain
TEC	Tata Electric Company
TC	Total Coliform
TSP	Total Suspended Particulates
URBAIR	Urban Air Project Quality Management
WC	Waste Carrier
WSSD	Water Supply and Sewerage disposal.
WWTF	Waste Water Treatment Facility

1 INTRODUCTION

The overall development of the city of Mumbai is the fundamental duty of the Brihanmumbai Municipal Corporation as a local self-government institution. While discharging this duty, it is equally important to protect the environment by taking measures to address the environmental issues arising in the city. Many new projects are coming up in the city. People also need to be provided with basic amenities. While doing all this, it is necessary to prepare an 'Environmental Status Report' and submit it to the Municipal Corporation to show all the conditions that directly or indirectly affect the environment.

The 74th amendment of the constitution of India in 1992 defines the role and duties of Municipalities & Municipal Corporations. The 12th schedule to the amended constitution states the scope of the work of the corporations. The scope includes environment protection, promotion of ecology and urban forestry. As a sequel to this, the Maharashtra state government issued an ordinance amend municipal act 1888, making "Environment Protection, Promotion of Ecology and Urban Forestry" as an obligatory duty vide section 61(ab) in the year 1994. The Environment Status Report (ESR) of the city of Mumbai for the period from April 2024 to March 2025 is prepared by Air Quality Monitoring and Research Laboratory of Environment & Climate Change department to fulfill the obligation under the clause '63B' of Mumbai Municipal Corporation (MMC) Act 1888. This report is based on the factual and statical data generated using parameters affecting the environment by different departments of Brihanmumbai Municipal Corporation and various departments of state/central government and industries.

2 DESCRIPTION OF THE AREA

Mumbai is located on the western sea coast of India from 18o 53' North to 19o 16' North Latitude and from 72o East to 72o 59' East Longitude. It was originally a cluster of seven islands. Later on these islands were joined to form present Mumbai. The total land of Greater Mumbai identified in Earlier Draft Development Plan 2034 (EDDP)was 458.28 sq km. The Municipal Corporation of Greater Mumbai (Brihanmumbai Municipal Corporation), however, was the Planning Authority of area that was more modest, since about 8.76% of the cited area fell under the jurisdiction of Special Planning Authorities (SPA).Currently Five such SPA exist in Greater Mumbai- MMRDA, SRA, MIDC,MbPT & Mhada. The Revised Draft Development Plan (RDDP) therefore prepared a development plan for 434.55 sq.km. leaving area with SA at 41.69 sq.km.The area of MbPT and Mhada SPA were inculded during the preparation of RDDP, as the said SPA's were declared on 23.04.2018 & 23.05.2018 by the GoM after the publication of RDDP.

Map No. 2.1: Mumbai Electoral Ward Boundary

3 CLIMATE OF MUMBAI

The city of Mumbai has Tropical Savanna climate. Generally South-West monsoon arrives in the city in the month of June and retreats in the month of September. As per data recorded by Regional Meteorological Centre, in the year 2024, Mumbai received a total rainfall measuring 2772.4 mm at Colaba & 3196.7 mm at Santacruz.The maximum rainfall of 1401.8 mm was recorded during July 2024 at Colaba and it was 50.6% of total rainfall received. The maximum rainfall of 1702.8 mm was recorded during July 2024 at Santacruz and it was 53.3% of total rainfall received. So it is observed that there was more rainfall as compared to previous year. (In the year 2023 total rainfall received 3018.1 mm at Santacruz and 2481.3 mm at Colaba). In the month of May-2024 the maximum temperature of 34.50C, and in the month of January 2025 minimum temperature of 21.00C was recorded at Colaba. In the month of April & November 2024 the maximum temperature of 35.00C and in the month of January 2025 minimum temperature of 18.30C was recorded at Santacruz. At Colaba the maximum Wind Speed of 7.7 Km/hr and minimum 0.5 Km/hr was recorded. At Santacruz the maximum Wind Speed of 5.8 Km/hr and minimum 1.4 Km/hr was recorded. The Relative Humidity was recorded maximum 87% and minimum 51% at Colaba. The Relative Humidity was recorded maximum 90% and minimum 38% was recorded at Santacruz.

Monthly meteorological data like temperature, rainfall and wind speed for Mumbai is shown in Table No. 3.1

TABLE NO. 3.1 METEOROLOGICAL DATA OF MUMBAI (2024-2025)

Month	Average Temp °C				Rainfall in mm		Relative Humidity in %				Wind Speed Km/Hr	
	Colaba		Santacruz				Colaba		Santacruz			
	Max	Min	Max	Min	Colaba	Santa cruz	Time 08:30	Time 17:30	Time 08:30	Time 17:30	Colaba	Santacruz
April 2024	32.9	25.6	35.0	25.2	0.0	-	76	64	69	53	1.1	3.5
May 2024	34.5	27.3	34.7	27.7	0.4	21.3	78	69	72	62	1.9	3.9
June 2024	32.7	26.2	33.8	26.7	507.0	346.9	80	73	83	72	1.1	4.6
July 2024	29.2	25.0	30.1	25.2	1401.8	1702.8	87	85	90	86	7.7	5.8
August 2024	30.8	25.8	31.3	25.8	289.3	382.4	85	78	86	78	7.2	5.7
Sept. 2024	31.1	25.4	31.0	24.9	442.9	656.9	85	76	88	77	2.5	3.4
October 2024	32.9	25.7	33.9	25.0	131.0	86.4	86	72	87	71	0.5	2.1
Nov. 2024	33.7	24.0	35.0	20.6	0.0	0.0	73	51	73	53	1.4	1.4
Dec. 2024	31.2	21.7	32.8	18.8	0.0	0.0	74	63	78	56	2.0	2.3
January 2025	31.1	21.0	33.3	18.3	0.0	0.0	76	64	79	52	2.4	2.7
February 2025	32.2	21.7	34.8	19.4	0.0	0.0	72	62	66	38	3.6	3.2
March 2025	33.0	24.3	34.9	22.9	0.0	0.0	74	61	69	47	3.1	3.1

Source: Regional Meteorological Centre, Colaba.

4 POPULATION OF MUMBAI

Mumbai is one of the important cities of the world, is also recognized as the most densely populated city. Inverse proportion of area and population causes serious impact on its environment.

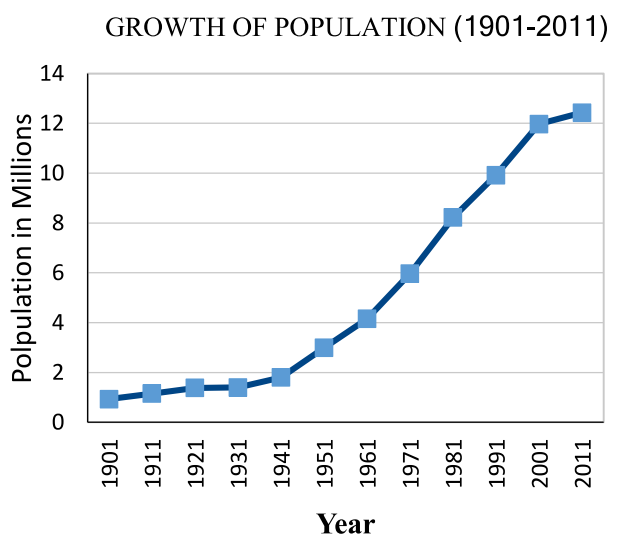
As per data received from Health Department of BrihanMumbai Municipal Corporation the estimated population of Mumbai is 13.11 million (year 2025). The population density of 27,125 person per sq.km (excluding no development area). Administrative Ward-wise population indicates that 'P/North' ward has maximum population of 9,91,665 persons where as 'B' ward has minimum population of 1,34,091 persons.

Table No.4.1 Growth of Population and rate of Increase during year 1901-2011

Year	Population in Million	% Growth
1901	0.93	-
1911	1.15	23.7
1921	1.38	20.0
1931	1.4	11.5
1941	1.8	28.6
1951	2.99	66.1
1961	4.15	38.8
1971	5.97	43.8
1981	8.22	38.0
1991	9.92	21.1
2001	11.97	20.6
2011	12.64	3.8

Source : Census Department of India

Graph 4.1: GROWTH OF POPULATION



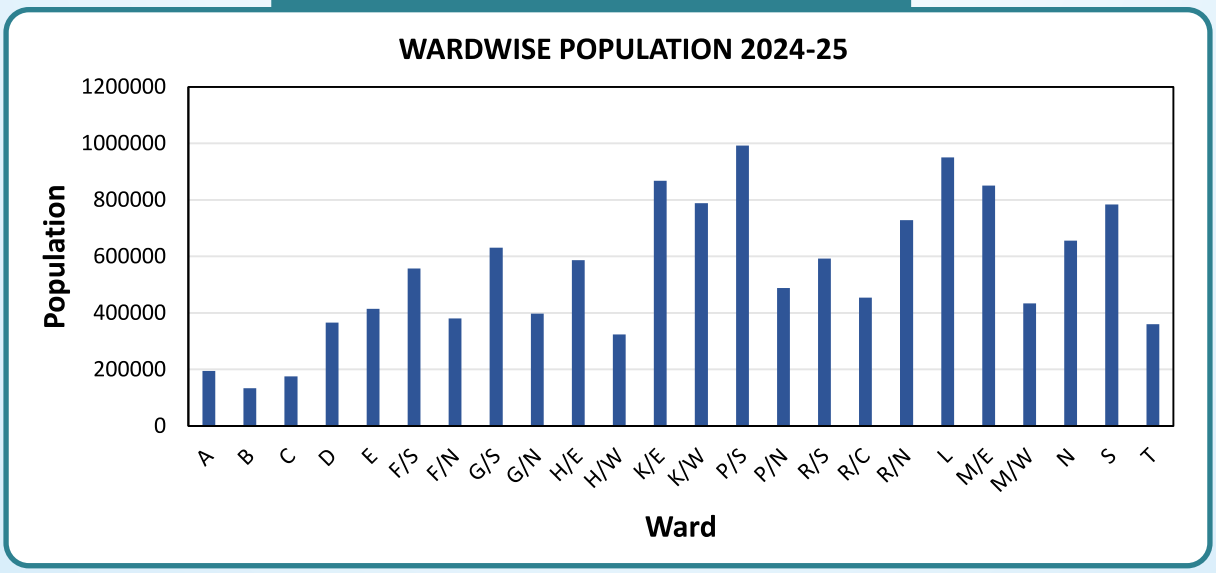
As per the mid-year election list of population in the year 2025, the wardwise area and population given by Public Health Department shown in table no.4.2

Table No 4.2: Wardwise Area & Population							
Administrative Ward	Area in Sq.km	Population		Administrative Ward	Area in Sq.km	Population	
		2024	2025			2024	2025
A	11.20	194210	194900	P/S	25.19	486544	488273
B	2.65	133616	134091	P/N	46.70	988154	991665
C	1.91	174419	175039	R/S	18.31	725585	728162
D	8.30	364106	365399	R/C	47.95	590102	592198
E	7.27	412833	414299	R/N	14.17	452808	454416
F/S	9.87	378913	380259	**Western Ward**	**232.55**	**5801729**	**5822339**
F/N	12.85	555328	557301	L	15.62	947067	950431
G/S	9.74	396524	397932	M/E	38.19	847865	850877
G/N	8.31	628812	631046	M/W	17.62	432365	433900
City Ward	**72.1**	**3238160**	**3250266**	N	29.68	653810	656132
H/E	12.40	584934	587012	S	32.55	780751	783524
H/W	18.65	322869	324016	T	44.91	358434	359708
K/E	24.00	864834	867906	**Eastern Ward**	**178.57**	**4020292**	**4034572**
K/W	25.18	785899	788691	**Brihanmumbai Corporation**	**483.22**	**13060781**	**13107177**

Source: Health Depts of Brihanmumbai Municipal Corporation

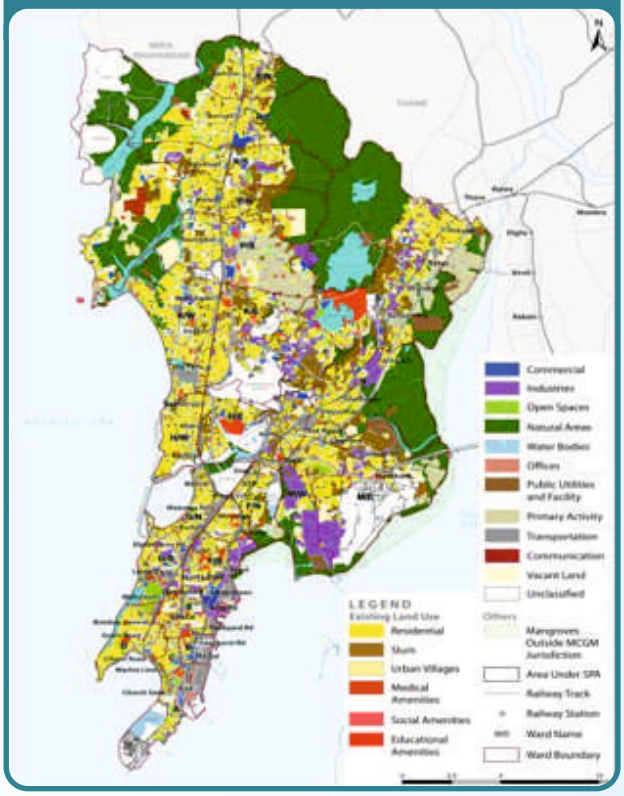
In the year 2025, if consider the area and population of Brihanmumbai, the area of Mumbai city is 72.1 sq. km Area of western suburb is 232.55 sq. km. and the area of the eastern suburb is 178.57 sq. km And the estimated population of the said division is 3250266, 5822339, 4034572 respectively.

Chart 4.2 : Wardwise Area & Population



5 LAND USE

Map No. 5.1: Action Plan



The Brihanmumbai Municipal Corporation was the first Municipal Corporation to adopt the concept of a development plan. The first development plan was formulated in 1964 and was sanctioned in 1967. This development plan was revised as per the provisions of Maharashtra Regional and Town Planning Act, 1966. The Sanctioned Revised Development Plan 1991 came into force in 1991-94. This plan was valid up to 2014. Brihanmumbai Municipal Corporation revised the Sanctioned Revised Development Plan 1991 during the period 2014-2018. The Development Plan for 2014-2034 was submitted to State Government under provision of section 30(1) of said Act on 02.08.2017 for sanction.

The State Government in accordance with the sub section (1) of section 31 of the Maharashtra Regional and Town Planning Act, 1966 have accorded sanction to the Draft Development Plan of Greater Mumbai with modification show in schedule-A appended to the notification No.T.P.B.-4317/629/CR-118/2017/DP/UD-11 May-2018 excluding substantial modifications as shown in schedule-B appended thereto. As per the notification dt.22.06.2019 the sanctioned D. P. 2034 is in effect from dt.01.09.2018. As per notification dt.21.09.2018 the sanctioned excluded part of Development Control and Promotion Regulation 2034 is in effect from dt.13.11.2018. The State Government has sanctioned some of the EPs vide notification dt.22.01.2019, dt.25.01.2019, dt.31.01.2019, dt.17.9.2019, dt.23.11.2019, dt.05.11.2020 dt.12.03.2021, dt.12.04.2021, dt.04.05.2021, dt.28.05.2021, dt.04.10.2021, dt.11.03.2022, dt.31.05.2022, dt.19.07.2022, dt.27.07.2022, dt.12.09.2022 & dt.24.03.2023 . dt.12.05.2023 and on dt.28.12.202 The balance Excluded Parts will be sanctioned by State Government in the due course.

Planning Area:

The ELU 2012 located the emergence of an additional area of 14.96 Sq.km, probably due to siltation of Thane creek. This area which comprises of Mangroves in within the Brihanmumbai Municipal Corporation limits and is shown as Natural Area in Development Plan 2034.

The Coastal Road approved by GoM will add an additional area of 1.80 sq.km through reclamation

of the sea. The alignment of this Road is marked on the Proposed Land Use (PLU). Any changes in the alignment of Coastal Road that would get necessitated during implementation would automatically become part of the DP-2034. Further, an area of 1.20 sq.km is proposed as green reclamation.

The addition of these land makes Brihanmumbai Municipal Corporation's total land area 476.24 sq.km. Brihanmumbai Municipal Corporation is Planning Authority for about 434.55 sq.m (91.24%) excluding the area coming under various Special Planning Authority (SPA).

Following SPAs exist in Grater Mumbai :

1.Mumbai Metropolitan Regional Development Authority (MMRDA).

2.Slum Rehabilitation Authority (SRA)–for approval of Slum Rehabilitation projects.

3.Maharashtra Industrial Development Corporation (MIDC).

4.Mumbai Port Trust (MbPT)

5.Maharashtra Housing Area Development Authority (MHADA) – for approval of MHADA project

Coastal Regulation Zone:

Ministry of Environment & Forest (MoEF) has issued CRZ notification vide No. S.O. 19 (E) dated 06.01.2011, in supersession of the earlier notification S.O. 114 (E) of 19.02.1991. This notification is superseded by the CRZ notification vide no. GSR 37(E) dt. 18.01.2019.

Coastal Regulation Zone Notification-2019:

The objectives of the new CRZ Notification includes (1) ensure livelihood security to the fisher communities, (2) protect the Coastal environment, (3) promote sustainable development.

Government of India in the erstwhile Ministry of Environment and Forests under number S.O.19 (E), dated the 6th January, 2011 the Central Government declared certain coastal stretches as Coastal Regulation Zone (referred as CRZ notification-2011).

Various State Governments and Union territory administrations and stakeholders have requested the Ministry of Environment, Forest and Climate Change to address the concerns related to coastal environment and sustainable development with respect to the Coastal Regulation Zone Notification, 2011.

Thereafter in exercise of the powers conferred by sub-section (1) and clause (v) of subsection (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986) and in supersession of the Coastal Regulation Zone Notification 2011, number S.O. 19(E), dated the 6th January, 2011, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE has issued Notification dt 18th January, 2019 (referred as CRZ Notification-2019).

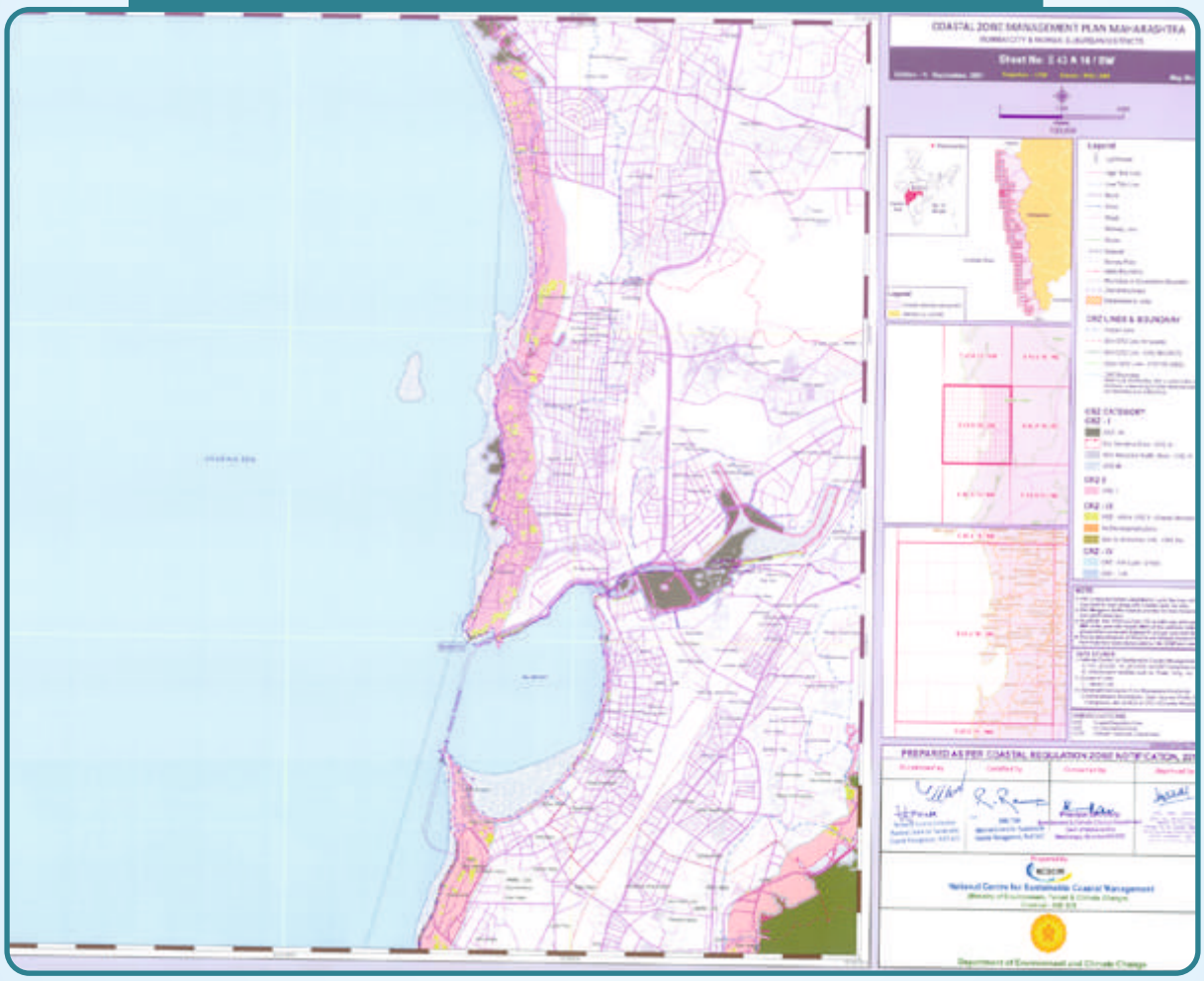
Additional director & Member Secretary (CRZ) vide letter dt. 29 th Sept. 2021 informed that based on recommendation of the NCZMA, the Ministry of Environment. Forest and Climate Change

hereby conveys its approval of the CZMPs for the Mumbai City and Mumbai Sub-Urban in the State of Maharashtra.

Brihanmumbai Municipal Corporation (BMC) has developed a new online module aimed at facilitating the process of seeking Coastal Regulation Zone (CRZ) remarks. This initiative is in alignment with the Sanctioned Development Plan 2024 and the SRDP 1991.

Also BMC has successfully developed switch tabs in the Table of Contents (TOC) functionalities , allowing users to view the CZMP 2019 map in conjunction with the DP 2034.

Map No. 5.2: Costal Regulation Zone area of Mumbai



6 MANGROVES IN MUMBAI

Constitution of Mangrove Cell

Mangrove Cell was constituted by the Government of Maharashtra in the wake of serious public concerus about mangrove loss in the State, particularly in Mumbai and surrounding areas. The establishment of the Mangrove Cell in 2012, initiated a series of measures for conservation of mangroves in Maharashtra The Cell is headed by the Additional Principal Chief Conservator of Forests (APCCF). A Deputy Conservator of Forests (DCF) has been appointed to boost Mangrove Conservation in Maharashtra.

In 2013, the State government ramped up efforts and elevated the status of mangrove forests on Government land from 'Protected Forest to "Reserved Forest. The Mangrove Cell also facilitated the establishment of Mumbai Mangrove Conservation Unit in 2014 to specifically cheek and prevent the destruction of mangroves in Mumbai and surrounding regions.

There was also an urgent need to promote research, education, ecotourism etc. to secure the biodiversity of our coastal and marine environment and to bring tangible benefits to the coastal communities. For the mission, creating an institution with the necessary skill set and the operational flexibility to address this complex task was under the consideration of the state government, that led to the establishment of a "Mangrove and Marine Biodiversity Conservation Foundation of Maharashtra" (Mangrove Foundation, in short), The Foundation was registered in the year 2015 under the Societies Registration Act. 1860.

Function of Mangrove Cell:

Mangrove Cell functioned extensively for mangrove conservation by taking block by block approach from raising mangroves on nurseries and organizing regular large-scale plantations on degraded mangrove areas to conducting Clean Mangroves Campaigns and awareness programmes.

The Mangrove Cell also forged strong partnerships with many leading national institutions and agencies, facilitating the introduction of state-of-the-art technologies and best practices in sustainable livelihoods to the Maharashtra shores. National Institute of Oceanography (NIO), Central Marine Fisheries Research Institute (CMFRI), Central Institute of Fisheries technology (CIFT), Central Institute of Brackish Water Aquaculture (CIBA), Marine Product Export Development Authority (MPEDA), Wildlife Institute of India (WII), Salim Ali Canter for Ornithology and Natural History (SACON) and Bombay Natural History Society (BNHS) are just a few names in that long and illustrious list of partners. Mangrove Cell also works with several NGOS, Citizen's Groups, educational institutions and private research organizations.

Based on the 'International Climate Initiative' Agreement between Government of India and the Federal Republic of Germany, a bilateral project towards improving conservation of marine biodiversity called "Sustainable Management of Coastal and Marine Protected Areas" (SM-CMPA) was launched in Maharashtra with the help of the German development agency called GIZ. The project led to the

notification of the Thane Creek Flamingo Sanctuary in 2015. Spread over on area of about 17 square kilometres with 896 Ha of Mangrove cover, it is home to over 200 species of birds, many of which are migratory like the splendidly -coloured flamingo which arrive in thousands in October November. A 'Coastal and of Marine Biodiversity Centre' was set up at Airoli, Navi Mumbai, in 2017 as a part of the GIZ Project. This interpretation and orientation centre for mangroves and marine biodiversity serves as a gateway to the Thane Creek Flamingo Sanctuary for tourists and environmentalists.

Activities of Mangrove Cell – Maharashtra Forest Department

1.Mangrove Protection.

2.Mangrove Conservation and Livelihood Generation Scheme

3.Mangrove Afforestation

4.Clean – up Campaign

5.Awareness generation

6.Coastal and Marine Biodiversity Central and mangrove Parks in Mumbai

1. Mangrove Protection

Mangrove Forests on Government land are declared either as 'Reserve Forest as per the Indian Forest Act, 1927. Mangroves on private land are declared as 'Forest', hence provision of Forest Conservation Act 1980 is invoked for the diversion of these forests. In Mangrove Division North Konkan (MDNK) a total of 11762.3253 hectors of land is under possession & also declared as Reserve Forest.

- A specialized unit, called Mangrove Division North Konkan (MDNK), has been formed to Check the increased pressure of development, waste dumping, pollution and encroachment in mangrove areas of the Mumbai Metropolitan Region.
- Patrolling is intensified in all mangrove areas.
- Considering the high vulnerability to encroachment and debris dumping in the mangrove area of Mumbai, Mumbai Suburban region and Thane the Mangrove Cell has employed the services of the Maharashtra State Security Corporation from December 2017 and a total of 184 Guards have been deployed for protection of mangroves in Thane, Mumbai and Mumbai Suburban districts.
- The illegal shanties, which had cropped up on niangrove lands in various parts of Mumbai, have been given notices for evacuation and many of them have been removed.
- In an effort to closely monitor the statis of mangroves in Maharashtra, Satellite mapping of mangroves areas is carried out, district by district, on a 1:5000 scale and the areas in the possession of Forest Department are being demarcated on the ground.
- The Mangrove Cell has now engaged the Indien institute of Space Science and Technology (IIST) which will monitor the health of mangroves in Maharashtra using near real time satellite remote sensing data.
- Implementation of "Mangrove Conservation and livelihood Generation Scheme for providing livelihood associated with mangrove habitats in order to establish sustainable mangrove conservation by local communities and enabling them to receive tangible benefits from protecting this ecosystem is

being undertalien. Total 45 villages are taking advantage of the scheme.

- Capacity Building of Staff for effective conservation and protection measures..

2. Mangrove Conservation and Livelihood Generation Scheme

- The Scheme was imitated on 20th September 2017 by Government of Maharashtra in the coastal districts of Maharashtra, to conserve mangroves on both private and government lands. The Scheme aims to provide benefits to individuals and community members of selected Villages.

- Based on the current mangrove cover, about 45 villages from Thane have been selected for implementation of the scheme activities by Mangrove Cell, Maharashtra Forest Department and The Mangrove Foundation.

- To ensure participation of the local communities, the Scheme is being implemented through village - based Mangroves Co- Management Committees (MCMC). Through this Scheme a group activity is entitled to 90:10% of subsidy while an individual (land owners with more than 1 acre mangrove) will get 75:25% subsidy through the scheme, the following activities are being implemented across various villages along the coastline of Division North Konkan; the following activities are being implemented across various villages along the coastline of MMCU:

  1. Crab Farming
  2. Fish Cage Culture (Asian Sea Bass)
  3. Oyster and Mussel Farming
  4. Ornamental Fish Culture
  5. Mangrove Ecotourism
  6. Mangrove Seed Collection

3. Mangrove Afforestation:

- Mangrove sapling have been raised in nurseries for establishing mangrove plantations in different coastal districts of the state.

- Since 2024-25 a total area of 46.04 hectares distributed over 03 locations across Mumbai and Thane has been covered under mangrove plantation programme and the a total of 2,04,601 lakh mangrove saplings have been planted.

4. Clean - up Campaign:

- Annual Mangrove Clean up programmes are conducted to create awareness

- The Clean Mangrove Campaign, a three year initiative started in 2015, by the citizens of Mumbai city and Mangrove Cell, made it to the Limca Book of Records. This was one of the biggest governments citizen partnership projects. In 2024-25, through this campaign 1,60,388 kg of garbage (mostly plastic) was cleared, involving about 8,474 Volunteers across Mumbai.

5. Awareness generation

- Development of 'Coastal and Marine Biodiversity Centre' (CMBC) at Airoli, Navi Mumbai.
- Regular Environment education and awareness talk for students and the public in general.
- Celebration of important Nature and Wildlife days to create awareness about the pressing subjects.
- Sensitizing young minds about the coastal and marine biodiversity of Maharashtra, through school programmes, at 'Coastal and Marine Biodiversity Centre' (CMBC) at Airoli, Navi Mumbai.

6. Coastal and Marine Biodiversity Central and mangrove Parks in Mumbai:

- The Mangrove Cell, Maharashtra Forest Department has developed a Coastal and Marine Biodiversity Centre (CMBC) at Airoli, Navi Mumbai in collaboration with the German agency GIZ under the Indo-German Biodiversity Programme.
- The major attractions at the centre are:
  - Vibrant and colourful exhibits of the rich coastal and marine biodiversity observed in Thane Creek Flamingo Sanctuary.
  - Sounds of various birds like flamingo, Kingfisher etc. and marine animals like Indian Ocean Humpback Dolphin and Blue Whale.
  - Interactive computer screens and wide LED displays showcasing interesting information and photographs about the coastal and marine biodiversity.
  - A theatre room which shows documentary films on the Flamingo Sanctuary. biodiversity of Thane Creek
  - A tourist boat for flamingo safari is also operated from this centre for tourists.
- The Mangrove Cell will be establishing a Giants of the Sea Museum at CMBC Airoli. This museum will house life size exhibits of giant sea animals such as Giant Squid. Whale Sharks and also skeletons of blue whales and other Marine animals.

- In the near future, the Mangrove Cell also plans to set up mangrove parks at Dahisar. Bhandup and Mahul which will have various attractions for tourists such as mangrove trails, bird trials and watch tower, kayaking, mangrove museum, glass bridge over mangroves, etc.
- Mangrove Park Gorai is developed the said project is to be completed in the financial year 2024-25 under the District Annual Plan (General). An administrative order for the amount of Rs. 25.30 crores has been received and the work of the said project is in progress.

7 URBAN RENEWAL SCHEME

The old dilapidated buildings of the Brihanmumbai Municipal Corporation and on rental basis will redeveloped by the Development Regulations to take up the city renovation plan by the Brihanmumbai Municipal Corporation and Maharashtra Housing and Area Development Authority (MHADA), a government authority involved in the housing sector and make such open spaces available for various civic amenities.

Table No. 7.1: Recreation Facilities Provided in the Mumbai for the year 2024-25.

Sr. No.	Particulars	Total No. (Up to 31.03.2025)			
		City	Western suburbs	Eastern Suburbs	Total
1	Garden (Except strip Gardens)/ Park	21	189	115	325
2	Recreation Grounds	183	201	96	480
3	Playgrounds	49	198	122	369
4	Shilpgram	0	1	0	1
5	Fountains	17	19	8	44
6	Band stands	3	1	3	7
7	Nurseries	12	9	7	28
8	Plant Sale Counter	10	9	6	25
9	Statues	58	8	14	80
10	Tree Plantations (Traditional method) + (Miyawaki method)	2606	12650	4788	20044
11	Sales of plants	4662	0	537	5199
12	Distribution of plants	8146	7139	4424	19709
13	Number of dead and dangerous tress removed	293	239	266	798
14	Trees trimmed for balancing	44883	69351	31802	146036
15	Deconcretized trees	292	851	624	1767
16	Total no. of tress	718589	1221737	1034957	2975283

Source: This information is received from Garden Department of Brihanmumbai Municipal Corporation.

Recreational Facilities

Providing recreational amenities to the public is a discretionary duty of the Corporation under section 63 of MMC Act1888. For balanced environment, abatement of air pollution and Green Mumbai, beautiful and clean Mumbai, Brihanmumbai Municipal Corporation provides recreational amenities to the citizens of this city by way of maintaining gardens and providing playgrounds (PG), recreational centres, water fountains, etc. In addition to recreation, Brihanmumbai Municipal Corporation also

encourages sports, art, cultural programs etc. Whereas health education and health promotion of citizens being its objective (Table No. 7.1). These facilities are utilized by citizens as well as others from different places.

Table No. 7.2: Recreation Facilities Created in the year 2024-2025.

Sr. No.	Details	Recreation Facilities							
		Zone-1	Zone-2	Zone-3	Zone-4	Zone-5	Zone-6	Zone-7	Total
1	Garden (Except strip Gardens)/ Park	3	18	49	82	49	66	58	325
2	Recreation Grounds	70	113	55	88	45	51	58	480
3	Playgrounds	24	25	39	69	66	56	90	369
4	Shilpgram	0	0	1	0	0	0	0	1
5	Fountains	8	9	5	4	2	6	10	44
6	Band stands	3	0	1	0	2	1	0	7
7	Nurseries	6	6	3	3	3	4	3	28
8	Plant Sale Counter	6	4	3	3	3	3	3	25
9	Statues	49	9	3	1	6	8	4	80
10	Tree Plantations (Traditional method) + (Miyawaki method)	431	2175	1477	1331	381	4407	9842	20044
11	Sales of plants	4662	0	0	0	70	467	0	5199
12	Distribution of plants	6632	1514	876	6013	3141	1283	250	19709
13	Number of dead and dangerous trees removed	106	187	88	79	127	139	72	798
14	Trees trimmed for balancing	14848	30035	27625	20903	12055	19747	20823	146036
15	Deconcretized trees	102	190	163	406	271	353	282	1767
16	Total no. of tress	255118	463471	337716	643505	411745	623212	240516	2975283

8 Veermata Jijabai Bhosale Botanical Udyan and Zoo

Veermata Jijabai Bhosale Botanical Udyan and Zoo is one of the oldest zoos in the country and amp; was established in 1862. This area was under the control of Agri-Horticultural Society of Western India. The management of this Udyan and Zoo was handed over to BMC by the then state govt in 1873. The total area of this Udyan and Zoo is approx. of 53 acres and is declared as "Heritage Grade II (B)" site. This Udyan- Zoo has been recognized as 'Medium Zoo' up to 25-12-2025 by Central Zoo Authority, New Delhi.

Financial Year	No. of Visitors	Revenue (Rs.)
2022-2023	28,55,418	11,17,37,386/-
2023-2024	30,16,827	11,98,37,171/-
2024-2025	23,57,831	9,18,75,231/-

Garden Department:

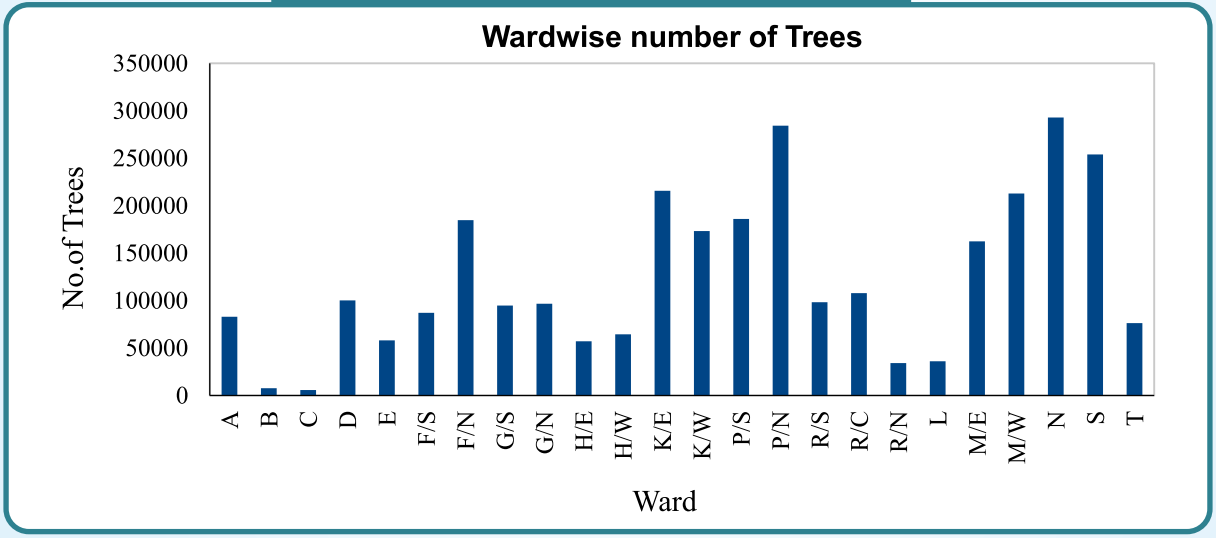
Veermata Jijabai Bhosale Botanical Udyan and Zoo at present and Modernization Project

- In year 2024-25, a total of 20044 trees are planted on municipal roads and available open spaces of which 6630 trees are planted by traditional method and 13414 by miyawaki method. Plantation of more than 5 lakh trees by Miyawaki method has been done till date.
- Removal of concrete and cement from around 1767 no. of tress.
- Spraying of insecticides and pesticides on infected tress.
- Trimming of 146036 tree branches to balance the trees.
- Formation of Tree basins around the tress.
- Removal 798 no. of dead and dangerous tress
- During 2024-25, the Brihanmumbai Municipal Corporation and the Tree Authority was organised the 28th exhibition of plants, flowers, fruits and vegetables from 31 January to 2nd February 2025 at Veermata Jijabai Bhosale Botanical Udyan and Zoo. To create consciousness and awareness about environment among the citizens, the workshop on various horticultural subjects was also arranged from 7th February to 9th February 2025.
- In 'H/West' ward of western suburb, flower exhibition was organised at Lions Juhu Childrens's Municipal Park, Santacruz (West) from 9th February to 11th February 2025. Similarly, in 'T' ward of eastern suburb, flower exhibition was organised at Dr. C.D.Deshmukh Udyan, Mulund (East) from 15th February to 16th February 2025.
- In the year 2025-26, a target has been set to plant approximately 25000 trees along roadsides and other places within Brihanmumbai Municipal Corporation jurisdiction.
- As per tree census, total no. of trees in 24 wards is 29,75,283.

Table No. 8.1: Ward wise number of trees					
Sr no.	Ward	No. of tress	Sr no.	Ward	No. of tress
1	A	83201	13	K/West	173232
2	B	7816	14	P/South	186002
3	C	5756	15	P/North	284271
4	D	100317	16	R/South	98305
5	E	58028	17	R/Central	107841
6	F/South	87240	18	R /North	34370
7	F/North	184837	19	L	36023
8	G/South	94774	20	M/East	162638
9	G/North	96620	21	M/West	213084
10	H/East	57314	22	N	292965
11	H/West	64674	23	S	254038
12	K/East	215728	24	T	76209
				Total	**2975283**

Source: Garden Department of BrihanMumbai Municipal Corporation.

Graph No. 8.1: Wardwise Number of Tress

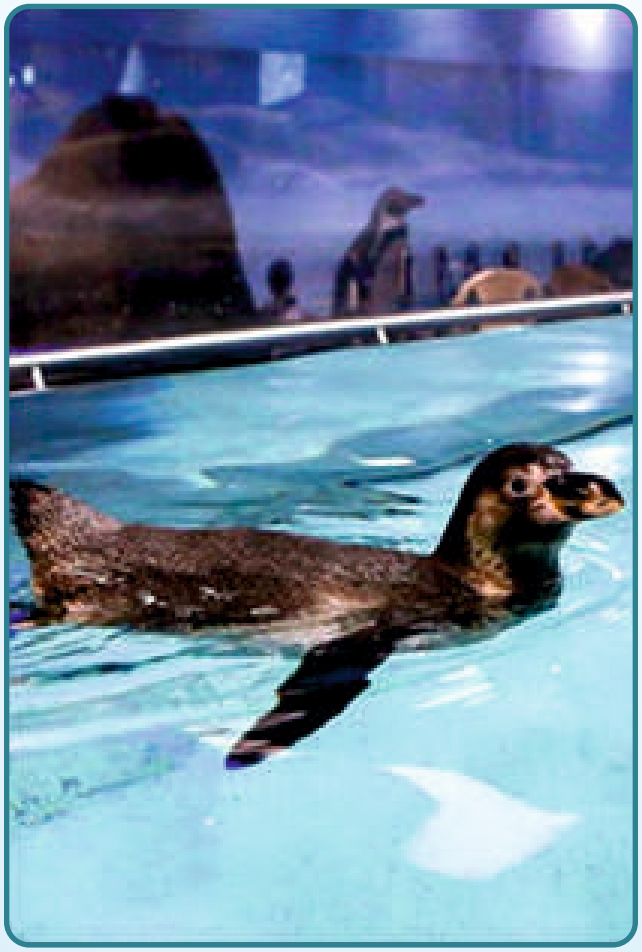


Zoo :

Veermata Jijabai Bhosale Botanical Udyan and Zoo at present and Modernization Project

- As on 31st March 2025, there are in all 387 animals, which indude 75 mammals of 10 Species, 256 Birds of 13 species and 56 Reptiles and aquatic animals of 8 species displayed in this Udyan and Zoo.
- The Zoo has now become paperless by way of full-fledged online ticketing system and self-ticketing kiosks have been installed at the Zoo entrance for visitors' usage.
- Battery operated E-vehicles have now been purchased by the Zoo and soon they will be made operational for the use of Senior citizens and common visitors.

Under modernization development works, approx. 105 trees of various 29 Indigenous species have been newly planted inside/nearby all the animal exhibits which has helped to maintain the blodiversity.



9 WATER SUPPLY

Mumbai receives raw water from seven impounded water resources viz. Vihar and Tulsi within Mumbai and Tansa, Modak Sagar, Upper Vaitarna, Middle Vaitarna and Bhatasa located at a distance of about 100 to 175 Kms from Mumbai.

Raw water available from these sources is conveyed with transmission main system ranging from 5500 mm to 2235 mm diameter pipelines and tunnels to the state of the art water treatment facilities at Bhandup Complex (2810 MLD) and Panjrapor (1365 MLD) Water Treatment facilities for tulsi (18 MLD) and Vihar (90 MLD) are located near to these sources. At these treatment plants, water is treated with processes such as coagulation, flocculation, settling, rapid sand filtration and post-Chlorination and quality of the effluent water is maintained in accordance with IS 10500: 2012 - Drinking water Specifications.

The treated water is stored in the Master Balancing Reservoirs (MBR) located near to treatment plants at Bhandup Complex within Mumbai and Yewai outside Mumbai. It is further distributed to 27 service reservoirs located throughout Mumbai City with water supply network of about 450 Kms this conveyance system remains charged for 24 hours and eliminates the chances of water contamination because of intrusion of ground water/sewage etc. There is 4000 M.L.D. water supplies to Mumbai.

Population Projection, Demand and Augmentation of Water Supply:

The population growth trend of Mumbai is continued. The projected water demand for 2041 is 6535 MLD (including enroute supply and transmission losses). The process of developing Government allotted Gargai (440 MLD), Pinjal (865 MLD) and Damanganga-Pinjal River Link Project (1586 MLD) water supply sources to meet the future water demand. On completion of these projects, the water supply will be

augmented by 2891 MLD.

Table No. 9.1:Source of Water Supply						
Sr. No.	Source	Year	Yield In MLD		Distance from city in KM	Remarks
			Up-lift	Commu tative		
1.	Vihar	1860	90	90	Within City	Present Source
2.	Tulsi	1872	18	108	Within City	
3.	Tansa	1892 -1945	500	608	106	
4.	Lower Vaitarna	1954	455	1063	119	
5.	*Upper Vaitarna	1972	635	1698	163	
6.	*Bhatsa	1980-2007	2120	3818	102	
7.	Middle Vaitarna	2014	455	4273	150	
8.	Gargai Pinjal	At Planning	440	4713	180	Future Source
9.	Pinjal	At Planning	865	5578	195	
10.	Damanganga	At Planning	1586	7164		

***Under Jurisdiction of State Government**

Abhay Yojna:

'Abhay Yojna' is implemented from 15 February 2020 which facilitated water connection holders to get relief from paying additional charges on the outstanding dues. From 1" April 2024 to 31 March 2025 about 5368 connection holders have taken the benefits of 'Abhay Yojna' and Rs.27.23 Cr. subsidy was given to him.

Water for all policy:

From May 2022 Brihanmumbai Municipal Corporation has implemented Water for All policy for slum unauthorised non slum, Gaothan and Koliwada all inclusive people for supplying water. Above these policies, after fulfilment of required document all of these above will eligible for new water connection. Under these policy upto 31" march 2025 approximate 18897 water connection application was received out of which 16686 PO issued and about 14968 new connections granted.

Table No. 9.2 Work for Water Distribution Improvement Programme			
Sr. No.	**Particulars of work**	**Completed in 2024-25 so far**	**Proposed in 2025-26**
1.	Replacement/Laying of pipeline	182.693 Km.	324.181 Km.
2.	Repairs and Reconstruction of Valve of Chambers	1401 Nos.	1922 Nos.
3.	Renewal of Service Connections	18914 Nos.	60888 Nos.
4.	Removal of Bunch of Connections	28 Nos.	30 Nos.

Nature Trail at Malabar Hill:

For the first time in Mumbai, the Hydraulic Engineer Department has undertaken the construction of a Nature Trail near the scenic spots of Kamla Nehru Udyan and Feroz Shah Udyan at Malabar Hill, D Ward, this project has been carried out without causing damage to trees or wildlife, allowing visitor to enjoy walking through the hilly terrain.

The nature elevated route approximately 485 meters in length and 2.4 meters in width. The said project was to be executed on the slopes of Malabar Hill, it challenging job from both engineering and geographical perspectives. In addition, the beauty of Swarajya bhumi ie. Girgaon Chowpatty in South Mumbai can be explore from the sea-viewing deck that accompanies this walkway. Various safety measures have been taken to protect citizens during their visits. The total cost of the project is approximately Rs.30 crores.

Now, the work of Nature Trail project has been completed, and it was opened to public on March 30, 2025.

Breif note regarding activities at Bhandup Complex Laboratory

Laboratory at Bhandup Complex was commissioned in the year 1980 for daily monitoring the quality of drinking water being supplied to Mumbai, as per IS 10500:2012.

Analysis of water for Physical, chemical and bacteriological parameters is being carried out to maintain the quality of drinking water as per IS 10500:2012. Accordingly water sample is tested at every stage of treatment viz. Clarification Filteration, chlorination etc.as follows.

1. Turbidity - Hourly
2. pH - bihourly
3. Residual Chlorine - bihourly
4. Temperature - bihourly
5. Colour - bihourly

Jar test is conducted on Raw water sample in every shift for prescribing optimum Poly Aluminium Chloride dose. Complete analysis of water samples at Raw, Filter and Final stage is carried out for Total Alkalinity, Total Hardness, Calcium Hardness, Chlorides, Suspended solids, Total solids, Manganese,

Iron, Aluminium, Dissolved Oxygen and Bacteriological examination for total coliform and E.coli once in a day. In general total 760 no. of tests are being carried out on daily basis.

Pise Panjarapur water treatment plant:

Approximately 50% of the total water supply to the Mumbai city is provided by the Pise Panjarapur water treatment plant. About 2120 MLD Bhatsa river water is pumped at Pise weir which is distance approx at 48 km from bhatsa dam. Out of 2120 MLD water, 1365 MLD water is treated at the Panjarapur water treatment plant and supplied to the Mumbai city and eastern suburbs on daily basis. 640 MLD raw water is injected in Tansa-Vaitarna main which is further treated at Bhandup water treatment plant.

At Pise, pre-chlorination is carried out on Bhatsa river water and then travels to Panjarapur water treatment plant for further treatment methods such as sedimentaion, filtration, post chlorination. Treated water is further passes through and send to Master Balancing reservoir (MBR) and service reservoirs to consumer end.

During all these activities, water samples at each stage of treatment are collected and tested for various parameters. Panjarapur laboratory is working st round the clock for this purpose and quality of final water through Pise Panjarapur is always maintained within prescribed limits as per drinking water standard IS10500:2012.

Municipal Analyst Laboratory:

Municipal Analyst laboratory is a Public Health Laboratory of Brihanmumbai Municipal Corporation (BMC) that specializes in analysing food and water samples to ensure safety and quality.

The Laboratory was established by the Public Health Department of Brihanmumbai Municipal Corporation (BMC) in 1903, primarily for testing clinical samples and later water samples. The Prevention of Food Adulteration Act (PFA) 1954 was implemented in Greater Bombay in 1956 since then the analysis of food samples initiated for the chemical and microbiological parameters. Thereafter considering the significance laboratory which was located in the old BMC building was shifted to centrally located G/North Ward office building in Dadar West. The consolidated Food Safety and Standards Act 2006 was established in India replacing the Prevention of Food Adulteration Act, 1954. Since then the laboratory head Municipal Analyst exercise his duties as a Food Analyst and give expert opinion in the court of law in cases of the unsafe regulatory samples.

The Laboratory is accredited by National Accreditation Board for Testing and Calibration (NABL) for complying with International Standard ISO/IEC 17025:2017 in field of Chemical and Biological Testing. The laboratory provide Cost Effective and Quality Testing Service using advance techniques following National and International Standard methods. Since January 2023 the laboratory has also implemented its own computerised Software system Food and Water Management System (FWQMS) "for entering technical data and generating reports. The authorized customers can login the system through the website https://fwqms.mcgm.gov.in and directly access test Report.

Table No.9.3:Water Quality at Source (Raw) and Treated (Final) during April 2024 to March 2025.

Parameters	Tulsi		Vihar		Bhandup Complex		Panjrapur (Bhatsa)		IS standards 10500:2012
	Raw	Final	Raw	Final	Raw	Final	Raw	Final	
Turbidity NTU	16.0-2.1	5.4-0.42	10.0-2.1	4.5-0.41	14.0-1.0	1.8-0.12	2.5- 1098	0.30- 2.4	1-5
pH	8.15-7.05	7.75-6.80	8.95-7.20	8.40-7.20	7.90-7.35	7.70-7.05	7.0-7.6	6.8- 7.4	6.5-8.5
Chlorides (mg/l)	20-11	22-14	22-11	25-12	13-8	15-10	10- 40	12- 46	250-1000
Total Alkalanity (mg/l)	42-29	40-26	48-35	45-33	46-34	45-33	28 - 86	20 - 80	200-600
Total Hardness (mg/l)	49-38	47-36	52-42	51-40	51-38	49-37	26 - 88	25 - 68	200-600
Bacteriological examination (CFU/100ml)									
Total Coliform	0-0	0-0	0-0	0-0	90-0	0-0	1600-1600	0-0	-
E-Coli	0-0	0-0	0-0	0-0	0-0	0-0	350 - 1600	0-0	-

Source: Hydraulic Engineer Department.
Unit : NTU= Nephelometric Turbidity Unit
mg/l = miligram per litre
CFU/100ml=Colony forming unit per 100 ml

Note : Raw water of Tulsi, Vihar and Bhandup complex plant is pre-chlorinated. Raw water Bhandup Complex contains water from sources Tansa, Modaksagar (Vaitarna), Middle Vaitarna and Upper Vaitarna.

Results of all parameters for final water of Bhandup Complex, Tulsi Filtration Plant and Vihar Filtration Plant are within Permissible Limit as per IS 10500 : 2012.

Testing of Drinking Water surveillance samples:

The drinking water is supplied through the pipeline network across Mumbai city and suburban region. During the supply water in distribution system may get contaminated by infectious microorganisms present in the environment through several sources including leaking sewage lines, back flow from cross-connections, old infrastructure, poor maintenance, illegal connections in slums and new constructions. In rainy season flooding and water logging can also contribute to contamination.

Considering the significance of community health surveillance of drinking water is essential as per World health organization (WHO) guidelines to verify that the water supplied to consumers meets national standards of safe drinking water. The Public Health Departments Epidemiology cell controls the surveillance program while the laboratory provides testing drinking water sample for Water quality surveillance.

Daily around 150-180 water samples and in monsoon or in an emergency upto 200-250 drinking water samples are jointly collected by the Public Health Department (PHD) and Hydraulic Engineering (HE) Department. The water samples are collected from the service reservoirs and sampling points throughout the distribution network across 24 wards of Mumbal which provides a comprehensive understanding of water quality and its potential risks. Trained staff of the Medical Officer Of Health (MOH), Assistant Engineer Water Works- Quality Control and Assistant Engineer Water Works- Leak Detection collect the samples following standard procedures. These water samples are transported maintaing cold chain to the laboratory for analysis. Routine Bacteriological Quality of all the drinking water samples is done in accordance to Indian Standard Drinking Water -Specification IS: 10500:2012, accordingly the indicator bacteria E.coli and Total Coliform are tested by using Membrane Filtration Technique (MFT) as per Indian Standard IS-15185:2016.

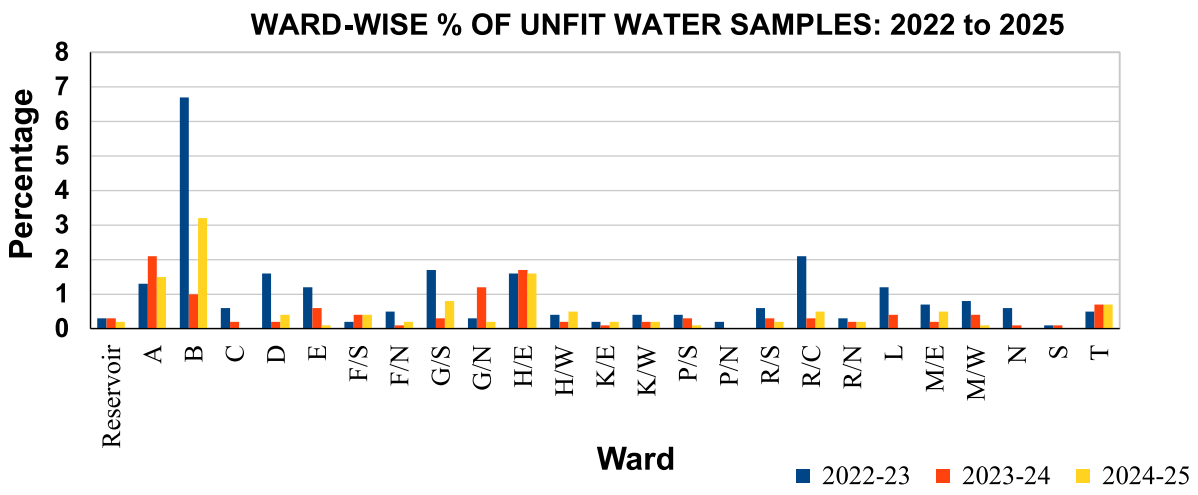
Table No.9.4: Wardwise % of Unfit water Samples April 2022 – March 2025

Sr. No.	Ward	Yearly % of Unsafe Samples			Sr. No.	Ward	Yearly % of Unsafe Samples		
		2022-2023	2023-2024	2024-2025			2022-2023	2023-2024	2024-2025
1	Service Reservoir	0.3	0.3	0.2	14	K/W	0.4	0.2	0.2
2	A	1.3	2.1	1.5	15	P/S	0.4	0.3	0.1
3	B	6.7	1.0	3.2	16	P/N	0.2	0.0	0.0
4	C	0.6	0.2	0.0	17	R/S	0.6	0.3	0.2
5	D	1.6	0.2	0.4	18	R/C	2.1	0.3	0.5
6	E	1.2	0.6	0.1	19	R/N	0.3	0.2	0.0
7	F/S	0.2	0.4	0.1	20	L	1.2	0.4	0.0
8	F/N	0.5	0.1	0.2	21	M/E	0.7	0.2	0.5
9	G/S	1.7	0.3	0.8	22	M/W	0.8	0.4	0.1
10	G/N	0.3	1.2	0.2	23	N	0.6	0.1	0.0
11	H/E	1.6	1.7	1.6	24	S	0.1	0.1	0.0
12	H/W	0.4	0.2	0.5	25	T	0.5	0.7	1.0
13	K/E	0.2	0.1	0.2	**Average of Unsafe Samples**		**0.99**	**0.46**	**0.46**

Source: This Information is received from G/N water Analyst Laboratory of Brihanmumbai Municipal Corporation

There were no change in trend of Ward- wise % of unfit Water Samples from April 2023-24 to March 2024-25.

Graph No. 9.4: WARD-WISE % OF UNFIT WATER SAMPLES



Water Supply Projects:

Future Sources of Water Supply to Mumbai:

The gap between demand and supply for the year 2041 is 6424 MLD. To meet the gap and to increase the water supply to Mumbai City and Suburbs, it is proposed to undertake development of following sources for augmenting water supply of Mumbai.

Table No. 9.5: Future sources of water supply

Sources	Yield in MLD	Ownership
Gargai	440	BrihanMumbai Municipal Corporation
Pinjal	865	BrihanMumbai Municipal Corporation
Damanganga-Pinjal River Link Project	1586	Govt. of India/Govt. of Maharashtra/ Govt. of Gujrat
Desalination project	200	BrihanMumbai Municipal Corporation
12 MLD Advanced Tertiary Treatment Plant (ATTP) at Colaba	12	BrihanMumbai Municipal Corporation
TOTAL	**3103**	

Source: BrihanMumbai Municipal Corporation Hydraulic Engineer.

1. Gargai Project consists of construction of dam and tunnel of about 2 Kms. The vetting of Components of DPR by CDO Nashik is completed except for outlet division. MoTA Clearance is received and Forest, Wildlife Clearance from MoEFCC is in process. Joint measurement survey of submerged land as well as rehabilitation and resettlement land is completed. The land for afforestation is partly obtained and process for obtaining remaining land is in progress. This project will augment Mumbai's water supply by 440 MLD.

2. Pinjal project consists of construction of dam across Pinjal River, conveyance system and allied works like Water treatment plant, Master balancing reservoir, pumping station etc. Brihanmumbai Municipal Corporation has appointed Consultancy Services for obtaining Environmental, Forest/Wildlife clearances from Competent Authorities including socio and environmental impact assessment studies and enumeration of trees for Pinjal Project.

3. Under 'River Linking Programme' initiated by Government of India; it is proposed to link Damanganga and Pinjal rivers and thereby 1586 MLD water would be made available to Brihanmumbai Municipal Corporation and this water will be conveyed into Pinjal reservoir after its completion.

4. Brihanmumbai Municipal Corporation, has now also planned to augment water supply by 200 MLD by construction of a Desalination plant which will provide a climate change resilient and reliable source of water for Mumbai. The final detailed project report (DPR) incorporating provisions for operational flexibility, utilization of 100% Green power for operation of plant has been completed in September 2023. Tender based on Design build operate basis is being prepared by M/s TCE .

Projects under Water Supply Project Department are as follow :

1. Construction of new water treatment plant of capacity 2000 MLD at Bhandup Complex: Preliminary site work is in progress. Eco Sensitive Zone permission form Sanjay Gandhi National Park is received. Project work will be started soon.

2. Design Build, Operate and Construction of 455 MLD capacity Pumping Station and Construction of new Pick Upweir with Gate at village Pise in Tal. Bhiwandi : The BMC sources approximately 2120 MLD water from Bhatsa dam, conveyed via Bhatsa river course up to Pise village. A R.C.C. pick up weir is constructed at Pise village to create an impoundment for Mumbai daily water supply. To augment the initial level of 1 THD water supply, the inflated rubber Balloons were installed to raise the weir height by 2 meter. However, due to operation and maintenance challenges and water wastage, a new work of Pise weir is proposed. To address maintenance challenges at the four stages of the Pise pumping station, an additional 455 MLD pumping facility is proposed to enhance water supply from Pise-Panjrapur to Mumbai. The work order for the work was issued on 18.02.2025 and the work started on 04.03.2025. Preliminary work and Geotechnical survey work for Pise weir and 455 MLD Pumping station is in progress

3. Recycle and Reuse of Wastewater to potable water at Colaba WwTF : Brihanmumbai Municipal Corporation is exploring various possibilities for augmenting Mumbai's Water Supply by non-conventional methods to tide over the current demand- supply deficit and providing sustainable alternative to the same. Considering this, it is proposed to carry out 12 MLD pilot project for conversion of Wastewater to potable water at the Colaba Wastewater Treatment facility having capacity of 37 MLD. Project Management Consultant is appointed for 12 MLD Advance Tertiary Treatment Plant at Colaba and consultant have submitted feasibility report in February 2024. Feasibility report is submitted and Review of tender documents is under progress.

4. Front End Engineering Design, preparation of Draft Tender and Bid phase assistance for constructing new Tulsi Water Treatment Plant :M/s Tandon Urban Solutions Private Limited have been appointed for the work of "Consultancy Services for Detailed Survey, Front End Engineering Design, preparation of Draft Tender and Bid phase assistance for constructing new Tulsi Water Treatment Plant". At present the work is in progress.

5. Development of Renewable Hybrid Energy Project Facilities of Hydro Electric Power Plant and Floating Solar PV Power Project at "Hinduhridaysamrat Shivsenapramukh Balasaheb Thackeray Middle Vaitarna Dam" : At present, forest land re-diversion permission is received from forest department. Project registration with Maharashtra Energy Development Agency (MEDA), permission for high voltage transmission line and permission from similar statutory authorities etc. related to the financial closure are in progress.

6. Transfer of Excess Water from Vihar Lake to inlet bay of WTP at Bhandup Complex : Follow up for obtaining permissions from Eco Sensitive Zone (ESZ) Committee is in progress. Hence, construction activity at worksite is not yet started.

7. Reconstruction of Culverts and Bridge acrosss the Municipal Service Road, Passing along BMC Water Trunk Mains at Pise Panjrapur Complex : There are 42 Nos. of Pipe Culverts, 1 No. of Bridge and 7 Nos. Of masonry Culverts on this road. At present, these Culverts are in dilapidated condition. Brihanmumbai Municipal Corporation has taken up work of Reconstruction of Culverts by demolishing existing masonry culverts and pipe culverts across Municipal Service Road passing along BMC Water Trunk Mains at Pise Panjrapur Complex. The work order for the work was issued on 10.07.2024 and work of construction of Minor bridges, Slab culvert , and Box culver is in in progress.

8. Structural Repairs to MBR, Yewai, Panjrapur : Work of structural Rapairs to MBR, Yewai Panjrapur is being carred out in two stages (compartments). Work of compartment-I is completed and handed over to HE Department. Structural repair work of Compartment-II is in progress. Structural Repairs to MBR, Yewai, Panjrapur work is nearly 56% completed.

Proposed / Ongoing Projects of Tunnels in support for Improvement in Water Conveyance system:

1. Proposed Tunnel Yewai Master Balancing Reservior to Kasheli : Two waters mains, measuring 2345 mm and 3000 mm dia., run alongside Mumbai-Nasik Highway from Yewai MBR to service reservoir. To accommodate further Mumbai Nashik highway's expansion and enhance water security, BMC has proposed to construct a Water Supply Tunnel of 14.1 Km from Yewai Master Balancing Reservoir to Kasheli. The work order for the work was issued on 26.08.2024 and preliminary work, Total station survey and Piling work for shaft at Tarali is in progress.

2. Proposed Tunnel from Kasheli to Mulund: 7.13 Km : BMC's Mumbai-II and Mumbai-III water supply mains are aligned along Eastern Express Highway (EEH) and cross Thane city before entering Mumbai limits at Mulund. Due to all-round growth of Thane city and proposed development thereat and owing to

the request received from Thane Municipal Corporation, Brihanmumbai Municipal Corporation (BMC) has proposed to construct a water supply tunnel of 7.13 KM from Kasheli (Bhiwandi) to Mulund Octroi Naka (Mumbai) as an alternative arrangement to the above said water mains. The consultant have been appointed. Work is awarded to M/s Afcons and work order to commence the work is given on 06.09.2024. The work is in progress.

3. Design and Construction of Tertiary Treated Water conveyance Tunnel from Dharavi WWTF to Ghatkopar WWTF : Due to irregular rainfall in recent times, Mumbai citizens have to face water shortages of 10 to 15 percent. There is a need to develop reliable and climate change sensitive sources to increase Mumbai's water supply and reduce the gap between demand and supply. As a solution to this, projects have been undertaken at various places to set up environment friendly sewage treatment plants to carry out scientific and modern processing of sewage generated within the Brihanmumbai Municipal Corporation area. It is proposed to perform tertiary treatment of 50% of the sewage after the sewage treatment facility is operational. In the first phase, 500 MLD of tertiary treated water available from Dharavi, Ghatkopar and Bhandup Sewage Treatment Facilities is proposed for potable/industrial use. Accordingly, construction of underground tunnels of 8.485 Km is proposed to carry tertiary treated water with a total available capacity of 970 MLD.

The work order for the work have been issued to the contractor. Preliminary Site Activities is in progress and obtaining the necessary permissions from Government Department is in progress

4. Design and Construction of Tertiary Treated Water Conveyance Tunnel from Ghatkopar WWTF to Bhandup WWTF and further upto Bhandup Complex - Package I : Due to the continuous delay in the arrival of rains in Mumbai for the past few years, the citizens of Mumbai have to face water shortage of 10 % to 15%. There is need to develop reliable and environmentally sustainable water sources to augment Mumbai's water supply gaps. Brihanmumbai Municipal Corporation hastaken up the works for the Design, Build, and Operation and Maintenance of Wastewater Treatment Facilities and these works are in progress. After commissioning of these WwTF, 50% of wastewater will be treated to tertiary level. Thus, much concerning issue of environmental preservation and degradation will get addressed. According to Feasibility report and detailed project report, to explore the feasibility for Recycle and Reuse of Tertiary Treated Water for the potable / industrial use / other bulk consumer re-use after series of treatments using the advance technology by conveying it to Bhandup Complex by constructing deep tunnel of length 11.61 km conveyance network from Ghatkopar WwTF to Bhandup WwTF and further upto Bhandup Complex. The preliminary works for construction of tunnel is in progress. The theoretical date of completion of the said project is June 2032.

5.Construction of tunnel from Powai to Ghatkopar High Level Reservoir and further upto Ghatkopar Low Level Reservoir (Remaining Work) : The Letter of Acceptance is issued to the contractor on 12.04.2022 and the letter of commencement is issued to the contractor M/s.Patel Engineering Ltd. on 02.12.2022. The work of excavation of shaft, Assembly and Tail tunnel by controlled blasting method at SCI (Shipping Corporation of India at Powai) is completed. Further, excavation of

tunnel 2.80 m dia. tunnel by TBM from SCI shaft to Ghatkopar High level reservoir is completed.

Presently work of excavation of tunnel 2.80 m dia. tunnel by TBM from Ghatkopar High level reservoir to Ghatkopar low level reservoir is in progress along with exaction of tunnel from SCI shaft to old TBM buried location is in progress by NATM method. The physical progress of the work is 38 %. The schedule date of completion of work is 01.03.2027.

6.Construction of tunnel from Hedgewar Udyan to Trombay Low Level Reservoir, Further upto Trombay High Level Reservoir (2.5 mtrs dia, 5.5 Kms length) : The shaft excavation and its RCC lining at Hedgewar Udyan, TLLR and THLR site is completed. The tunnel boring from Hedgewar Udyan to TLLR and from TLLR and THLR by TBM and its lining is also completed. Vertical pipeline in shaft at Hedgewar Udyan, TLLR and THLR site is completed. The surface pipeline work at Hedgewar Udyan is completed. Further, the surface pipeline work at TLLR and THLR is in progress.

At present the overall progress of the project is 93% and is expected to be complete by 29th September 2025. After completion of the project, the water supply in M/East and M/West Wards will be improved.

7. Amar Mahal-Wadala-Parel tunnel (2.5 mtrs dia, 9.7 kms length) : The first stretch of 4.2 Km of tunnel boring and subsequent tunnel lining from Amar Mahal (Ghatkoper) to Wadala (Pratiksha Nagar) upto Parel (Sadakant Dhavan Udyan) has been completed in August 2022. The boring of second stretch i.e. from Wadala to Parelis completed. Tunnel R.C.C. lining of this stretch is in progress. The overall progress of the project is 85%. Objective of said tunnel is to improve the water supply of 'F/North', 'F/South' and part of 'E' and 'L' Wards and will also cater to the requirement of future development at BPT(Bombay Port Trust) land and Wadala Truck Terminal areas.

Pipelines:

1. Replacement of old Twin Tansa Mains (1450mm dia. each) by providing and laying Single 2000mm dia. M.S. pipeline from Maroshi to Sahar Village : Removal of existing Twin Tansa (East and West) mains is in progress. Further laying of proposed 2000 mm dia. M. S. Pipeline having length of 3.15 Km is in progress and 39 % work is completed.

2. Replacement of 2750 mm dia. Tansa Enlarged main in Gundavali – Kasheli – Balkum section and Replacement of 2400 mm dia. Vaitarna main in the Gundavali – Kapurbawadi – MCP – Saddle Tunnel section by providing and laying 3000 mm dia MS Pipeline : Vaitarna and Tansa Enlarged mains are old and deteriorated, making it impossible to supply water at their full capacity. Additionally, the existing water mains passes through densely populated slum areas in Thane city, posing a constant potential risk to the surrounding areas in case of any damage. This makes it essential to replace the water mains in this section.

In this context, it is proposed to replace 2750 mm dia. Tansa Enlarged main in Gundavali – Kasheli – Balkum section and 2400 mm dia. Vaitarna main in the Gundavali – Kapurbawadi – MCP – Saddle Tunnel section by providing and laying 3000 mm dia MS Pipeline having length of 21 Km. The work order is issued on 20.09.2024 and the work is in progress.

Structural repairs to existing Reservoirs :

1. Structural repairs to Trombay High Level Reservoir (THLR) located inside BARC premises Anushaktinagar (55 MLD) : Work has been completed in June – 2023.

2. Structural repairs to Trombay Low Level Reservoir, RCF Colony,Chembur (27 MLD) : Work has been completed in April - 2023.

3. Structural Repairs to Ghatkopar Low level Reservoir in 'N' ward (11.35 MLD) : 46% Work is completed. The repair work of compartment 2 of GLLR is completed and same has been handed over to HE department. Now the repair work of compartment no 1 is in progress. Expected Completion by December – 2025.

4. Structural Repairs to Powai Low level Reservoir in S ward (10.89 MLD) and Structural Repairs to Powai High Level Reservoir -II in S ward (18.16 MLD) : 46% Work of Powai Low level Reservoir is completed and the handing over procedure of compartment no 2 of said reservoir is in progress. After the handing over of compartment no 2, the repair work of compartment no 1 will be started. The repair work of Powai High Level Reservoir -II will be started after completion and handing over of Powai Low Level Reservoir to HE department. Expected Completion by May – 2027.

5. Structural Repairs to Bhandup Master Balancing Reservoir (MBR-1) at Bhandup Complex (246 MLD) : Work is completed on 16.09.2024.

6.Structural Repairs to MBR, Yewai, Panjrapur (118 MLD) : 56% Work is completed. Expected Completion by July - 2025.

Reconstruction of Existing Reservoirs :

Reconstruction of Malabar Hill Reservoir at Phirozshah Mehta Garden Malabar Hill in 'D' Ward (1.47 MLD): -The work of Reconstruction of Malabar Hill Reservoir has been initiated, however at present the work is stopped. At present the remarks of IIT Roorkee has been obtained on the feasibility to repair the reservoir without constructing and additional reservoir.

10 RAIN WATER HARVESTING

Brihanmumbai Municipal Corporation supplies 4000 million liters of water every day, against a demand of 4505 million liters per day to Mumbai, the economic capital of our country. The purity of the water supplied to the citizens of Mumbai is very high on the "International Quality Standards Rating" and considerable expenditure is incurred for this purification. Unfortunately this water is being used for all secondary requirements also such as flushing of latrines and washing of vehicles. In view of the indiscriminately rising population and comparatively limited resources there is an urgent need to search ways to save water and to put those to actual use. BMC may not be able to supply water for secondary requirements such as flushing, gardening, vehicle washing swimming pools, air conditioning etc. and it is expected that Citizens have to generate the water for secondary requirements through rain water harvesting or recycling.

Rain Water Harvesting (RWH) is an ancient and convenient method. It implies storage of rainwater in, manmade tanks or recharging ground water and utilization as per requirement. Since, rainwater within our own compound is to be stored; anybody is entitled to do so. Most importantly, the capital expenditure and maintenance cost involved in this method is quite low. Rain Water Harvesting contributes in raising the ground water level, the quality of the ground water improves and Soil erosion is arrested. Entry of seawater in ground water can be prevented. Following methods can be deployed for Rain Water Harvesting.

1. Storage in underground or above ground artificial tanks.
2. Direct recharging of the subsoil water strata (aquifer) through dug up wells or bore wells.
3. Recharging of the subsoil water by percolation.
4. Forcing rainwater in the ground through bore wells and thereby preventing entry of salty seawater in the subsoil strata.

Very large quantities of water can be stored because of the large roof areas of industrial buildings. Those who buy water in tankers can save on this expenses by using rainwater. House owners or tenants can store rainwater with a little bit of efforts. BMC is making all-out efforts to actually practice Rain Water Harvesting / water conservation.

Municipal Corporation of Greater Mumbai is the 1st Municipal Corporation in Maharashtra to make Rain Water Harvesting mandatory. Rain Water Harvesting had been made mandatory to new properties coming for development from 1st Oct. 2002 having plot area 1000 sq.mt and more. This condition was extended to the properties which had come for development prior to 1st Oct. 2002 but are coming for occupation / completion from 1.9.2003. As per Government directives u/no. TPB - 4307/396/CR-124/2007/UD -11 dtd. 6.6.2007, the condition was binding to all developments having plot area 300 Sq. Mts. and more. From 8.05.2019 as per DP 2034, the condition is binding to all developments having plot area 500 Sq. Mts. and more. The condition is applicable to the properties coming for addition

alternation /use of balance FSI etc. The condition is imposed as one of the I.O.D. (Intimation of Disapproval) conditions for installation of RWH scheme and occupation certificate is granted only after compliance of the same. RWH scheme is being designed by the RWH consultant appointed by the Architect. The completion certificate for the implemented scheme is also being issued by the RWH Consultant. Building Proposal dept. verifies the completion certificate issued by the Consultant before issuing Occupation Certificate.

RWH is being implemented in all the new developments of Municipal Corporation where RWH is mandatory. In addition all the Departmental Heads of BMC have already been directed to get RWH schemes implemented in their premises. To encourage existing private Co-op Housing Societies / Owners to implement RWH schemes in their premise Rain Water Harvesting and Water Conservation Cell of BMC guides regarding implementation of RWH schemes free of cost. In addition BMC while issuing new Bore well permissions in private premises, a condition is incorporated to recharge such bore well with roof top rain water.

The Cell organized first 2 days technical seminar with All India Institute of Local Self Government (A.I.I.L.S.G.) and Indian Water Works Association (I.W.W.A.) on 28th Feb. / 1st Mar. 2003. The seminar comprised of 17 lectures and 130 participants were appraised of various aspects of Rain Water Harvesting. The RWH cell had participated in most of the major seminars in Mumbai and conducted many awareness programs to appraise various sections of society. To involve citizen Essay competition on "My way of Water Conservation" was organized in July 2003 in four groups and four languages. An information booklet on Rain Water Harvesting and water Conservation was released in its prize distribution ceremony by Hon. Mayor of Mumbai. The booklet is appreciated even by Government of Maharashtra and circulated to many Municipal Corporations / Councils. Municipal Calendar 2004 was dedicated to Rain Water Harvesting so that the message is conveyed to people at large. Drawing competition for Municipal school children was also conducted in Jan / Feb. 2004 to create awareness amongst teachers, students and their parents. N.S.S. students were involved in awareness campaigns to reach more citizens. Techniques like Jalmelas in each administrative ward and open grounds, training ward staff for dispersing basic information, painting BEST busses relaying messages through TV sets on Railway Stations, in BEST buses and private premises, putting message on Municipal bills, advertisement hoardings at prominent locations, informative documentaries in C.S.T. subway are being adopted to reach masses. N.G.O.s are also involved in this activity. Media like TV channels and FM radios are also being used for communicating messages. The all requisite information is also uploaded on website : www.mcgm.gov.in for easy access by Citizen. As a part of awareness campaign, in 2012, BMC has published a school book series in Marathi titled प...पाण्याचा on water conservation and rain water harvesting for Std. I to X. Moreover, another activity titled 'Aji Ajobanche bol' had been introduced to rope in senior citizen in this campaign. It is expected that senior citizen would use their energy in convincing people in their nearby locality to save water. They would also interact with school children and even read out books to them and explain the ideas incorporated thereat.

In view of the late monsoon in the year 2015, (RWH andWat.Cons.) Cell has started Save Water Awareness Campaign to spread awareness amongst the citizens of Mumbai. As a part of the continuous awareness campaign, advertisements in local newspapers were published appealing Mumbaikars to use water judiciously and to avoid wastage of water. Save water awareness posters, short videos were prepared with the help of Tata Trust. Save Water appeals / advertisements were also displayed on BEST buses, Bus Queue Shelters, TV in BEST buses and in local trains. Lectures on water conservation in various Municipal schools via virtual classroom were delivered through Marathi Vidnyan Parishad. A yearlong initiatives 'Water smart Mumbaikars – mass awareness for water conservation" has been initiated by me 2 green NGO as BMC as concept partner.

Due to late monsoon in 2019, with the help of Public Relation Dept., Hydraulic Engineer's dept. printed 1,92,000 Save water awareness posters in Marathi, English and Hindi appealing Mumbaikars to use water judiciously and to avoid wastage of water. These posters were pasted in all the Municipal offices and some of the private premises all across Mumbai.

Jal Shakti Abhiyan : Catch the Rain 2022

Central Government had launched a nationwide campaign "Jal Shakti Abhiyan: Catch the Rain 2022"- when it falls where it falls, focusing on saving and conserving rain water, covering both Urban and Rural Areas across the country. Hon'ble President Shri.RamnathKovind inaugurated the Jal Shakti Abhiyan on 29.03.2022. The staff of Hydraulic Engineer Department of BMChad been participated in this event through Facebook Live and took the water oath as per the guidelines of National Water Mission.

Under Jal Shakti Abhiyan Catch the Rain 2022, Rain Water Harvesting Cell of BMC has implementedAwareness Campaign consisting of an exhibition of posters, advertisements in local daily Newspapers, display of banners etc. and save water messages published through local daily newspapers in Marathi, Hindi, Englishand Urdu Languageson every Sunday from the month of May 2022 to August 2022. Save water Digital posters and flex banners has displayed in all the 24 BMC Wards Offices, Municipal Hospitals, Municipal Offices, CFCs centers etc.

Save water awareness campaign–2024

Due to less rainfall last year in catchment area of dams, the available water stock in the dams is less

as compare to last two years. Hence, it is necessary to create awareness among the citizens of Mumbai to avoid wastage of water. As a part of awareness campaign it is decided to distribute and display the Save Water Awareness posters in 24 wards of BMC, to publish advertisement in local daily newspaper, to broadcast audio clip though FM radio and to display save water messages on BMC portal.

Save water awareness campaign–2025

It is necessary to create awareness among the citizens of Mumbai to avoid wastage of water. As a part of awareness campaign it is decided to distribute and display the Save Water Awareness posters in 24 wards of BMC and to publish advertisement in local daily newspaper.

Jal Shakti Abhiyan – Jal Sanchay Jan Bhagidari -2025

The Central Government has launched the Jal Shakti Abhiyan, a nationwide campaign to "Catch the Rain," in 2019. Under this campaign, the Jal Sanchay Jal Bhagidari initiative had been launched on 06.09.2024. The main objective of this initiative is to save water. The Jal Sanchay Jan Bhagidari campaign aims to build 10,000 recharge structures within the limits/jurisdiction of each Municipal Corporation. As part of the Jal Shakti Abhiyan, a separate website has been launched for the Jal Sanchay Jan Bhagidari initiative, where information such as photos of the recharge structures, latitude and longitude, and the current status of the structures must be submitted.

Brihanmumbai Municipal Corporation takes efforts in all directions to support Rain Water Harvesting which is one of the Best Management Practices for a Corporation. It is the duty of all citizens to contribute their own efforts to this cause to help themselves.

11 SEWAGE DISPOSAL

Sewerage disposal work is carried out by three departments of Brihanmumbai Municipal Corporation in following ways:

1. **Sewage Operation (SO) :**It Operates and maintains Municipal sewage systems comprising of conveyance systems i.e. sewer lines, collection system i.e. Sewage Pumping Stations and Sewage Treatment Facility and disposal system.
2. **Sewage Projects (SP) :** This department looks after the work of sewer planning, laying of new sewers, up-sizing the existing sewers and elimination of missing links in existing sewer network.
3. **Mumbai Sewerage Disposal Project (MSDP) :** This department carries out the work of construction of Waste water Treatment Facilities and Pumping Stations for treatment and disposal of sewage. It also carries out works of construction of sewer tunnels.

Brihanmumbai Municipal Corporation has prepared second sewerage master plan known as Mumbai Sewage Disposal Project (Stage II) in the year 2002. In order to provide safe and clean environment to citizens various projects such as Upgradation of existing Waste Water Treatment Facility (WwTFs), Construction of new WwTFs, Reconstruction of Sewage Pumping Station, construction of Sewer Tunnels are planned.

The projects of WwTFs are undertaken as per effluent discharge standard prescribed by Hon'ble NGT in their order dated 30.04.2020 (BOD < 10 mg/Ltr, TSS < 20 mg/Ltr, Fecal Colliform < 100 MPN/100 ml).

Table No. 11.1: The details of the WwTFs projects

Sr. No.	Name of WwTF	Plant capacity in MLD	Tertiary Treatment (Capacity in MLD for Reuse)	Design, Build Period in years	Expected date of Completion	Physical work upto 30.04.2025
1	Worli	500	250	5	04.07.2027	29.02%
2	Bandra	360	180	5	04.07.2027	33.12%
3	Dharavi	418	209	5	04.07.2027	30.08%
4	Versova	180	90	4	04.07.2026	24.80%
5	Malad	454	227	6	04.07.2028	24.91%
6	Bhandup	215	108	4	22.08.2026	43.07%
7	Ghatkopar	337	170	4	04.07.2026	40.00%
	Total	**2464**	**1234**	**-**	**-**	

The tenders for WwTFs at Worli, Bandra, Dharavi, Versova, Malad, Bhandup and Ghatkopar were invited on Design Build Operate (DBO) basis in which operation and maintenance of 15 years are included. All the STP works are awarded to successful contractors. STP works for Worli, Bandra, Dharavi, Varsova, Malad and Ghatkoper have commenced from 05.07.2022 and work for Bhandup STP has commenced

from 23.08.2022.

The work of 37 MLD Colaba WwTF has been completed and same has been put in operation from April 2020.

Brihanmumbai Municipal Corporation has emphasized the need of recycle and reuse of treated waste water for non-potable and industrial purposes.

There is a provision of 50% of plant capacity for tertiary treatment in WwTF. This tertiary treated water will be made available for non-potable purposes. At present 10 MLD of treated waste water is available at Colaba WwTF for reuse. After completion of these seven STPs in Mumbai, not only 2464 MLD of sewage water will be recycled but also the much concerning issue of environmental preservation and degradation will get addressed.

List of other work being carried out by this department along with their present status is as below:

Table No. 11.2 : Sewer Tunnel Works

Sr. No.	Name of the Tunnel	Size of Tunnel in mm	Length of Tunnel in Km	Remarks
1	Versova – From D.N. Nagar old Versova Pumping station To new Versova Influent Pumping station (near Versova Lagoon)	2000	3.1	Work is substantially completed. Physical Progress = 97%
2	Priority Sewer Tunnel-I – From Don Bosco school, Borivali (West) To New Malad IPS.	3200	5.9	Work in progress. Physical Progress = 64%
3	Priority Sewer Tunnel-II – From Goregaon Pumping Station To new Malad IPS	2600	4.7	Work in progress. Physical Progress = 44%
4	Mithi-IV - Construction of Sewer Tunnel From Bapat Nallah and Safed Pul Nallah To Dharavi WwTF	2600	6.7	Work in progress. Physical Progress = 91%

Table No.11.3 : Pumping Stations works

Sr. No.	Sewage Pumping Station	Plant Capacity in MLD	Remarks
1	Versova IPS	540	Work in progress (81%)
2	Malad IPS	1580	Work in progress (68%)
3	Bhandup IPS	461	Work in progress (93%)
4	Ghatkopar IPS	699	Work in progress (50%)

The benefits of various MSDP - II projects to the environment are as follows:

1. Saving and Conservation of Drinking Water
2. Conservation of Environment
3. Improvement in Public Health of Mumbai City
4. Improvement in Sea aquatic Life and water quality.

Sewage Operation (S.O):

Laboratory at Dadar under Sewerage Operation department has carried out monitoring of marine outfalls at Worli and Bandra. Marine water samples are collected at 1km. peripheral area from outfall disposal point.

Table No.11.4: Water Quality at Marine Outfall 2024-25

Sr. No.	Location	PH		D.O.		Turbidity		F-Coli		B.O.D.	
	Parameters MPCB Standard: SW-II	6.5 – 8.5		≥ 4 mg/l		≤ 30 NTU		≤ 100/100 CFU		≤ 3 mg/l	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
1	Worli Outfall	7.18	8.12	4.6	6.3	2.96	4.5	95	300	0.4.	2.9
2	Bandra Outfall	7.84	8.06	4.6	6.0	2.48	5.45	80	260	0.5	2.8

D.O.: Dissolved Oxygen **B.O.D.:** Biochemical Oxygen Demand **CFU:** Colony Forming Unit

Source: This information is received from Sewerage Operation Department Dadar Laboratory

The analytical reports are compared with the MPCB standards - SW II and it has been found that at Worli and Bandra, levels of pH, D.O., Turbidity and B.O.D are within the prescribed standards and max. level of F. Coli are exceeding at all sites.

Table No.11.5: Zone wise capacity and average dry weather flow capacity of sewage

Sr. No.	Name of Sewage Treatment Plant	Installed Capacity (In MLD)	Zone wise Average Dry Weather Flow of sewage (In MLD)
1	Colaba	37	28.29
2	Worli	757	325.53
3	Bandra	797	508.59
4	Versova	180	93.43
5	Malad	280	177.10
6	Bhandup	280	85.59
7	Ghatkopar	386	90.43
8	Charkop	6	3.94

M.L.D.: Milion Liters Per Day

Source: TThis information is received from Sewerage Operation Department Dadar Laboratory.


akbartravels.com
कार्यकारी अभियंता यांत्रिकी
(मुख्य मल वाहिनी) शहर
MH.01
DR.3884

12 STORM WATER DRAINS

Mumbal is lined on the west by Arabian Sea and is intercepted by number of creeks. The tidal variation is a major consideration in the system of storm water drains (SWD) for releasing rainwater as well as waste water into sea. The present SWD system in the city is more than 100 years old consisting of 281 km of major nalla, 1039.06 km of minor nalla and 2103.69 km of roadside nalla. This network consists of underground drains and laterals built on the basis of population and weather conditions. The old SWD system is capable of handling rain intensity of 25 mm per hour at low tide. If the rain intensity is more than 25 mm per hour during high tide, there is always a possibility of water logging in low lying area.

In practice however, the proposal aims to ensure proper discharge of rainwater through the storm water drainage system by removing silt and waste from the lines. Waste and debris flowing into the systems, especially during the monsoon, cause blockages. This, along with narrow widths of the drains and illegal constructions over them, results in overflow. Identification Cof such problems and their resolution is essential to improve the situation. Moreover, due to lack of a separate sewage system in some areas, waste/sewage water gets mixed into the storm water drainage system. It is therefore necessary to prevent this sewage water from entering the storm water system. Under JNNURM of the government of India, a special plan was initiated for the treatment and separation of such mixed waste from the storm water system.

There are 82 major out-falls in city which drain to Arabian sea directly, 9 at Mahim creek and 7 at Mahul creek. There are 51 out-falls in western suburbs draining directly into Arabian sea while 14 drain into Mithi river which ultimately discharged in sea through Mahim creek. In eastern suburbs, 25 out-falls discharge in Thane creek while 4 discharge in Mahul creek. In suburbs and extended suburbs area, open SWD are constructed on both sides of road.

Heavy rain in Mumbai city in June 1985 had resulted into flood like situation, which paralyzed the roads and railway traffic and there was heavy economic loss. In view of this, BMC decided to carry out the study of the storm water drainage system in the city and master project was planned to help to drain out Storm Water immediately and reduce floods. In the year 1989 M/s Watson Hawksley International Pvt. Ltd. and their Indian associates M/s AIC ware appointed as a consultants for this project. Consultants had inspected existing storm water drainage system and nallas, identified 121 catchments areas of the city and studied the deficiencies in cleaning and maintenance. In the year 1993, to improve the storm water drainage system, they prepared a master plan, which is known as BRIMSTOWAD project. This report suggested improvements in SWD system with design criteria, of rainfall intensity of 50 mm/hr with run off oefficient of 1.00.

Government of India sanctioned special grant of Rs.1200 crores as per detail project report submitted to Government of India to implement BRIMSTOWAD Project in year 2007. Out of these, BMC has received Rs.1000 crores till date.

Before that in the year 2005 Mumbai faced unprecedented rains on 26th and 27th July 2005 and 944 mm rainfall was recorded in one day. This resulted in the flooding; therefore, Government of Maharashtra had appointed a Fact Finding Committee to analyse the factors responsible for the situation that arose during July 26th and 27th, 2005 in Mumbai and to find out the remedial measures thereat, so as to avoid such incident in future. Based on the BRIMSTOWAD Master Plan Report and recommendations of "Fact Finding Committee", the balance "BRIMSTOWAD" works for the improvement to the storm water drainage system are undertaken. As per suggestion of the Fact Finding Committee BRIMSTOWAD report is to be reviewed and upgraded for which BMC has appointed M/s. MWH (1) Pvt. Ltd, as the consultant. This consultant had submitted the master plan on date 30.04.2018 to Municipal Corporation.

The scope of the BRIMSTOWAD project is as under-

1.Rehabilitation and augmentation of underground drains in city.

2.Construction of new drains in RCC.

3.Training of nallas in RCC M-40.

4.Widening and Deepening of nallas.

5.Construction of access road along the nalla.

6.Construction of Strom Water Pumping Stations.

Table No.12.1: Present status of the BRIMSTOWAD Project

Details	Phase I				Phase II			
	City	W. S.	E. S.	Total	City	W. S.	E. S	Total
No. of the Works	5	7	8	20	16	10	12	38
No. of completed works	5	7	7	19	14	05	07	26
No. of the works in progress	0	0	01	01	01	03	4	08
Tenders yet to be invited/ Tenders invited	0	0	0	0	01	02	01	04

Source: Storm Water Drainage Department

Table No.12.2: Status of Storm Water Pumping Stations under BRIMSTOWAD		
Sr. No.	**Pumping Station**	**Status**
1	Haji Ali	Completed and commissioned in May 2011
2	Irla	Completed and commissioned in May 2011
3	Cleaveland	Completed and commissioned in May 2015
4	Lovegrove	Completed and commissioned in May 2015
5	Britannia	Completed and commissioned in June 2016
6	Gazdarbund	Completed and commissioned in June 2019
7	Mogra	A contractor has been appointed and work is underway to obtain the necessary permissions form the competent authority for the work.
8	Mahul	The Packet 'C' of the responsive bidders have been opened after inviting tenders for the said Project. The worm of transferring the Salt Pan site in F/South section, which has been decided for the said project, is In progress. After the transfer of the site, the contractor will be appointed.

Source: Storm Water Drain Dept of Brihanmumbai Municipal Corporation

Total expenditure incurred till March 2025 is approx Rs.2541.37 Crores. However, due to increased width and depth of the drains due to change in design parameters, requirement of unconventional technology specially in tidal zone and passage of time – particularly due to encroachment issues, total financial requirement of the project has seen a substantial rise and additional funds to the extent of Rs.2700 Crores are required.

Environmental Aspect:

Cleaning of major drains is done every year before the monsoon by Inviting tenders through registered contractors. The scope of drain cleaning work is divided into 75 percent of the estimated total drain cleaning before the monsoon, 15 percent during the monsoon and 10 percent in the remaining period after the monsoon. Also, water inlets are also cleaned.

Underground Storm water channels and deep chambers where cleaning is not possible by human entry are cleaned using drain cleaning machines. Storm water channels along the roads are cleaned using rodding and dredgers. Cleaning of large connections in the suburbs is done using machines like JCB, Poklen etc.

A lifting system is arranged to drain the water accumulated in low-lying areas due to heavy rainfall

during high tide. This helps in the rapid drainage of rainwater. Also, flood control valves are arranged at necessary places to prevent high tide water from entering urban areas. Apart from this, trash dumps have been arranged on some drains to prevent waste from urban areas from entering the sea.

The Brihanmumbai Municipal Corporation has undertaken the work of revitalizing the Dahisar, Poisar and Oshiwara river, and the work revitalizing the Dahisar, Poisar and Oshiwara in progress.

River revitalization works include widening rivers, improving river water quality, preventing pollution from entering the river from the river catchment area, constructing a network of sewage channels, access roads for sewage treatment, beautifying river banks, and setting up sewage treatment plants, etc.

Development of Mithi River:

For the effective implementation of Mithi river Development Project, the Government of Maharashtra vide Government Decision No.MRD-3305/PR.No.-109/dated 19.08.2005 established the Mithi River Development and Protection Authority under the chairmanship of Hon. Chief Minister, Government of Maharashtra. As per the said Government decision, out of the total 17 km length of the river, 11 km length (between Filterpada, Powai to CST Bridge Kurla) development works have been carried out by the Mumbai Municipal Corporation and the remaining 6 km length (between CST bridge, Kurla to Mahim Causeway) development works have been carried out by the Mumbai Metropolitan Region Development Authority under the guidance of Mithi River Development and Protection Authority. The widening and deepening of Mithi River which is under the jurisdiction of the Brihanmumbai Municipal Corporation is almost complete, except for the section between the Kurla-Kalina Bridge and CST Bridge.

As of now, the work of widening and deepening of the 17 Km long Mithi river is 93.96% completed

and the work of constructing the protective wall is 94.60% completed, Thus, the retention capacity of the Mithi river has increased by two times and the carrying capacity has increased by three times. A Mithi river pollution control plan has been prepared for the pollution control in the Mithi River. The said plan is being implemented in four packages from Filterpada, Powai to Mahim Causeway.

13 SOLID WASTE MANAGEMENT

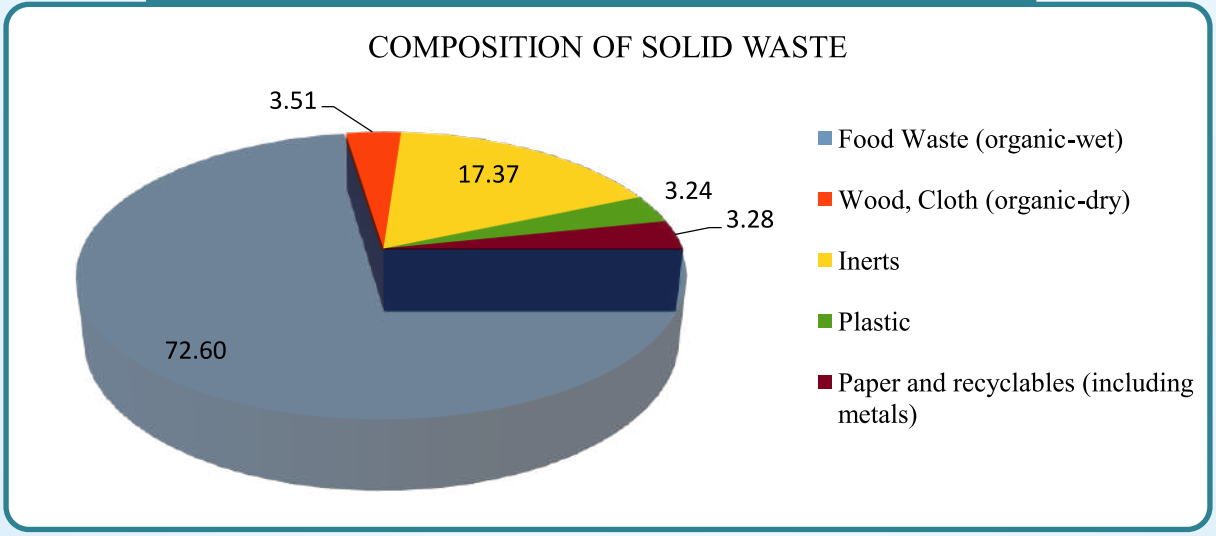
Due to various projects and programs arranged by Brihanmumbai Municipal Corporation in the last 5 years of the quantum of waste collected in the year 2024 has been approx 6300 MT per day. of the 6300 MT transported to disposal sites by vehicles in over 921 trips/day, the waste is primarily collected separately as dry and wet waste. The waste can be broadly classified in various categories i.e. 72.60% Food waste (organic-wet), 3.51% wood, Cloth (organic-dry), 17.37% Sand, Stone and Fine earth, 3.24% Plastic, 3.28% Paper and recyclables (including metals).

Table 13.1: COMPOSITION OF GARBAGE IN MUMBAI

Sr. No.	Type of Solid Waste	Percentage
1	Food Waste (organic- wet)	72.60%
2	Wood, Cloth (organic-dry)	3.51%
3	Sand, Stone and Fine earth	17.37%
4	Plastic	3.24%
5	Paper and recyclables (including metals)	3.28%
	Total	**100.00%**

Source: Report of NEERI, 2016

Graph No. 13.1: Composition of Solid Waste in Mumbai



The waste from all over the city is collected and at present, it is treated at Kanjur processing site using Bio-Reactor Technology and Windrow Composting and rest is disposed off at the Deonar dumping site by simple dumping and leveling. Deonar dumping ground is the oldest one, receiving approximately 14% and Kanjur receiving remaining 86% of waste generated on daily basis. The activity of receiving of fresh MSW at Mulund Dumping Ground is stopped w.e.f. 21.12.2018 and the project work of recovering the land by processing the existing waste with suitable technology is in progress.

Scientific Closure Project of old site at Gorai has been completed in 2009 and operation and maintenance of the site is in progress. Area of different dumping grounds is given in table 13.2. Input loads of MSW at various dumping sites are given in Table 13.3.

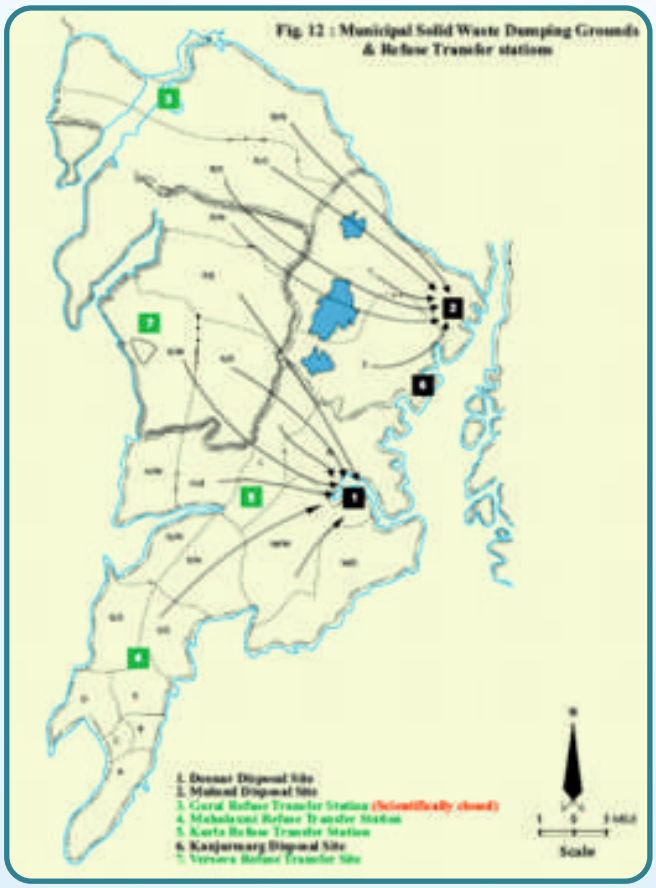
Table 13.2: CAPACITY OF VARIOUS DISPOSAL SITES IN MUMBAI

Disposal Site	Area (Ha) Filling m*	No. of Years in Use
Deonar	120	88
Mulund	24	47**
Kanjur	118.41	14

**** Receiving of fresh MSW at Mulund Dumping Ground is stopped w.e.f. 21.12.2018**

Table 13.3: INPUT LOAD OF WASTE

Sr. No.	Disposal Ground	Classification of Waste	Tonnes/day
1	Deonar	Municipal Solid Waste	Approx. 500-700 TPD
2	Mulund	Municipal Solid Waste	The activity of receiving of fresh MSW at Mulund Dumping Ground is stopped w.e.f. 21.12.2018 and the project work of recovering the land by processing the existing waste with suitable technology is in progress.
3	Kanjur	Municipal Solid Waste	Approx. 5900



There are 2500 no. of 1.1-cubic meter containers, around 15,000 nos. of 120 Ltrs. Litterbins, around 10,000 nos. of 240 Ltrs. Litter bins and 100% of total waste is collected through House-to-House collection. The daily Municipal Solid Waste (MSW) is collected and transported by deploying various types of vehicles. Salient features of transportation are given in Table 13.4.

Table 13.4 SALIENT FEATURES OF TRANSPORTATION FOR SOLID WASTE

Sr. No.	Type of Vehicle	Number of Services 2020-21	Number of Services 2021-22	Number of Services 2022-23	Number of Services 2023-24	Number of Services 2024-25
1	Compactors	1432	1926	1547	1581	1615
2	Skip Vehicles/ Dumper Placers	0	0	0	0	0
3	Dumpers/Refuse Vehicle	192	315	88	83	81
4	Bulk Refuse Carriers	-	-	-	-	-
5	Tempo/Jeeps	3358	5294	4179	4238	4413
6	JCB Machines	61	127	51	58	88
7	Stationary Compactors	83	97	97	95	95
	Total	5126	7759	5962	6055	6292

Swachh Bharat Abhiyan 2.0:

- Swachh Bharat Abhiyan 2.0 is launched on 1st October 2021 by the Hon'ble Prime Minister with vision of 'Garbage Free' cities.
- Since the Brihanmumbai Municipal Corporation is an important administrative mechanism for implementing Swachh Bharat Abhiyan, joint efforts are being made to maintain cleanliness in the city with the cooperation of the State and Central Governments.
- Under the said campaign, the efforts and programs of the Solid Waste Management Department of the Brihanmumbai Municipal Corporation have been revamped to achieve the required level of cleanliness.
- Swachh Bharat Abhiyan 2.0 period is from 1 October 2021 to 1 October 2026. The objective mainly include segregation of waste at household level, scientific treatment of old accumulated waste (legacy waste), Aspirational toilets, 100% sewage management collection / disposal / processing etc.
- Rs. 1162 crore proposal under Swachh Bharat Abhiyan 2.0 has been approved for treatment of old accumulated waste (legacy waste) at Mulund and Deonar. In this, apart from the Municipal Corporation's share, the Central Government's Rs. 290.55 (25%) crores and State Government Rs. 406.77 (35%) Crores totalling Rs. 697.32 crore share will be received. Out of Rs.697.32 crore share, Rs.139 crore received and Rs.112.19 crores utilised for Mulund legacy waste remediation. City Sanitation Action Plan of Mumbai is approved which will include 15000 community toilet seats, 400 Aspirational toilets for floating population, 4672 Individual Household latrine and 500 urinals in Mumbai under SBM 2.0

Swachhata Hi Seva 2024:

- As per the directives of the Central Government, Swachhata Hi Seva campaign were undertaken with the theme of 'Swabhav Swachhata, Sanskaar Swachhata'. from 17th September to 2nd October 2024. On September 17, 2024, a special beach cleaning program was conducted in Mumbai.
- Also as per directions other activities like 48 nos. of Cleanliness Target Units were identified for deep cleaning, Tree plantation under 'Ek Ped Maa Ke Naam', RRR(Reduce, Reuse, Recycle) centres, Poster/drawing competition etc events were organised.
- Under Swachhata Hi Seva 2024 campaign training for sweepers, health check-up camp etc sessions were included..
- On the occasion of Mahatma Gandhi's birth anniversary on 2nd October, programs like Prabhat Pheri, felicitation of Safai Karmachries, rangoli, Swachhata pledge on cleanliness were undertaken.

Capacity Building:

- As per guidelines of Swachh Bharat Mission 2.0, ULB have to be create programmatic intervention for facilitating capacity building of municipal staff.
- Accordingly 250 Junior Overseers (J.O.)'s and Engineers working in ward sent to Indore to get overview of cleanliness model of cleanest city of India in the month of June 2024.
- The Indore study visit included waste collection/segregation at source in residential areas, centralized processing facilities and control rooms etc.

Solid Waste Management Rules, 2016:

On 8th April, 2016, the new SWM Rules 2016 issued by Ministry of Environment, Forest and Climate Change have come into effect and the said rules applies to the entire Country of India.

SWM Rules, 2016 also deals with the duty of manufacturers or brand owners of disposal products and sanitary napkins and diapers. Such manufacturers have been directed to provide necessary financial assistance to local authorities for establishment of Waste Management System. They have been also directed to put in place a system to collect back the packaging waste generated due to their production. In addition to the above, such manufacturers have been directed to explore the possibility of using all recyclable materials in their products and to educate masses for wrapping and disposal of their product.

In addition to the above, SWM Rules 2016 deals with the duties of waste generator. All resident welfare and market association Gated communities and institutions with more than 5000 sq. meter area, all hotels and restaurants, shall within one year from date of Notification of these rules and in partnership with local bodies, ensure segregation of waste at source by the generators as prescribed in this rule, facilitate collection of segregated waste in separate streams, handover recyclable materials to either the authorized waste picker or the authorized recyclers. The bio-degradable waste shall be processed, treated and disposed off through composting or bio-methanation within the premises as far as possible. The residual waste shall be given to the waste collectors or agency as directed by the local body.

SWM Rules 2016 provides for responsibility on the generation of the MSW by imposing penalty, if the same is not complied with in accordance with the Solid Waste Management Rules, 2016.

SWM Rules 2016 provides for the various compliances to be carried out by the Municipal Bodies within time frame mentioned therein.

The chart showing the various compliances to be carried out by Brihanmumbai Municipal Corporation along with the compliances already carried out and which are in process on behalf of the Brihanmumbai Municipal Corporation is as below.

Sr. No.	Activity	Time limit from the date of notification of rules.	Action taken by Brihanmumbai Municipal Corporation
1	Identification of suitable sites for setting up solid waste processing facilities.	2 Years	Already identified the land by BMC, in January 2015. Requested Govt. of Maharashtra to allot the land at Mauje Karvale, near Taloja to BMC for processing and disposal of Municipal Solid Waste (MSW) in compliance with SWM rules 2016. Also BMC has identified land at Mulund East (near Airoli bridge) and requested GoM to handover the same. As per Hon'ble High Court vide its order in PIL No.217 of 2009, Government of Maharashtra (GoM) has allotted about 52.10 Ha. land at village Karavale, Tal – Ambernath, Dist – Thane to BMC for Solid Waste Management Project. Out of this, 39.90 Ha. land is Government land and 12.20 Ha. is private land. Out of total 52.10 Ha. land, 35.82 Ha. lands is useful for the BMC (i.e. 29.715 Ha. Govt. land and 6.105 Ha. of private land) due to alignment of Alibaug Virar Corridor and the GAIL Pipeline passing through the designated plot. Out of 39.90 Ha. Govt. land Advance possession of Govt. land admeasuring 38.81 Ha. is given to on 18.01.2016. The physical possession of Government land admeasuring about 12 Ha. has been taken over by BMC from Tahsildar Ambernath on 16.02.2019. Acquisition of remaining Govt. land and about 6.105 Ha. private land is being carried out through Collector Thane District. After completion of physical acquisition process, the land will be used for SWM Project activities of Brihanmumbai Municipal Corporation. Complied within the time stipulated.
2	Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.	1 Years	Same as above.
3	Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.		Is in process. Same as Sr. No.1
4	Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source.	2 Years	Notices are already issued. Enforcement is being implemented in phased manner. BMC has taken various initiatives for encouraging the segregation by bulk generator and the action against the defaulter has been taken. BMC, against 1325 defaulting bulk generators has taken action under section 368 of MMC Act. Out of 1325 cases, in which prosecution was launched, and fine of Rs. 42,93,500/- is recovered. Also under section 53 (1) of MRTP Act, out of 326 notices issued, in 44 cases prosecution is launched against non-compliance. Further, BMC has identified 207 Bulk generators having area more than 20,000 Sq.M. and in 7 cases Maharashtra Pollution Control Board (MPCB) has launched prosecution. BMC has established 46 dry waste segregation centers in 24 wards for segregating collected dry waste from various establishments. For collection and transportation of dry waste, BMC has deployed 96 vehicles in 24 wards, which carry the dry waste to segregation centres. BMC has implemented new zonal contract for collection of waste in line

Sr. No.	Activity	Time limit from the date of notification of rules.	Action taken by Brihanmumbai Municipal Corporation
			with SWM Rules 2016, in which 399 nos. of large compactors and 246 nos. of mini compactors vehicles having separate compartment for collection and transportation of dry waste, e-waste and wet waste are to be provided. Complied within the time stipulated.
5	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 Years	Same as above.
6	Ensure separate storage, collection and transportation of construction and demolition wastes.	2 Years	As of date, BMC collects and transports separately the construction and demolition waste. 2 plants of 600 TPD for Processing of C&D Waste has been commissioned in Nov 2024. As per the direction in Hon'ble Supreme Court of India in Special Leave Petition (Civil) no. 23708 of 2017, BMC has devised Special Software System to insure safe disposal of C&D generated by bulk generator complying with C&D Rules 2016. Also as regards to small scale C&D generators, BMC has 'debris on call' services. Complied within the time stipulated.
7	Setting up Solid waste precessing facilities by all local bodies having 100000 or more population.	2 Years	BMC has already setup Solid Waste Procesing facility at Kanjur Landfill site. The MSW processing facility has a capacity of processing 1000 TPD of MSW with composting technology and 3000-6500 TPD with bioreactor technology for period of 25 years and has been operational since 13.02.2011. Presently, around 5900 TPD (4900 TPD by bio-reactor technology and 1000 TPD by compost) is being processed. Work of Waste to Energy Project is awarded at Deonar Dumping Ground. About 600 TPD MSW will be processed scientifically and about 8 MW energy will be generated from this project. Consent to Establish (CTE) has been received for the project on 04.06.2022from MPCB. Project is expected to be commissioned by 04.10.2025. Mahanagar Gas - 1.BMC has signed MoU with M/s Mahanagar Gas Ltd. for establishing CBG plant of 1000 TPD capacity (Phase 1-500 TPD; Phase 2- 500 TPD). 2.Administrative approval for Concessional Agreement to be signed with MGL is obtained. 3.Propsal of handing over land at DDG to MGL is sent to State Government for approval under 92 (dd) of MMC Act,1888

Sr. No.	Activity	Time limit from the date of notification of rules.	Action taken by Brihanmumbai Municipal Corporation
8	Setting up common or stand alone sanitary landfills by or for all local bodies having 0.5 million or more population of the disposal of only such residual wastes from the processing facilities as well as un-treatable inert wastes as permitted under the Rules.	3 Years	At Kanjur site, there is provision of sanitary landfill after commissioning of compost plant. As well as there is provision of sanitary landfill at Deonar Dumping Ground in Waste to Energy project. After getting possession of the land at Mauje Karavale, there is plan for setting up sanitary landfill site also at Mauje Karavale, also In process
9	Bio-remediation or capping of old and abandoned dump sites.	5 Years	The work of scientific closure of Dumping Ground at Gorai is completed in 2009 by BMC. Work of Dumpsite Reclamation at Mulund Dumping Ground (MDG) is awarded to the contractor. After obtaining required clearances and mobilization of equipments and machineries, commencement of the project is started from 01.10.2019. Till date (20.04.2025) contractor has scientifically processed and disposed off about 46,81,490 MT of legacy waste. M/s MITCON Consultancy and Engineering Services Ltd. has been appointed as Project Management Consultant (PMC) for this project. As regards to Deonar Dumping Ground, the existing dump thereat is about 18.35 million MT. The Hon'ble High Court, Mumbai vide Order dated 26th and 29th February 2016 directed BMC to engage the services of IIT or NEERI as consultants to suggest the measures for properly maintaining the site till proper facility is created thereon as per MSW Rules. At present Deonar Dumping Ground accumulated 18.35 million ton of MSW. According to order of High Court dated 26th and 29th February, 2016 five member monitoring committee has been constituted for monitoring the operation and maintenance activities at Deonar Dumping Ground. Accordingly progress of same is being reviewed regularly by Monitoring Committee. Thereafter, NEERI is in-principally appointed for closure plan at Deonar Dumping ground for the study to develop the closure plan for Deonar dumpsite, including advice on appropriate technologies to be used for the dumped waste at Deonar as per SWM Rules 2016. Currently work has been awarded for carrying out legacy waste characterization study at Deonar Dumping Ground. Based on the outcome of the study further decision/planning shall be done Bio-remediation or capping of Deonar Dumping Ground in process.

Dry Waste Collection and Sorting Centers:

Brihanmumbai Municipal Corporation has set up 47 dry waste collection and sorting centers in 24 wards. 94 Nos. of separate vehicles are deployed for collection and transportation of dry waste to dry waste sorting centers, in all the 24 wards of BMC. Waste / Rag Pickers' Associations are appointed to carry

out the collection and segregation of dry waste. Dry Waste is segregated into paper, cardboard, thermacol, plastic, metal and glass and then sent to the recyclers for recycling directly by the rag pickers' associations.

BMC framed its own Bye-laws in 2006, named as "Greater Mumbai Cleanliness and Sanitation Bye-laws". These Bye-laws are applicable to every public place within the limits of Greater Mumbai, to every generator of Municipal solid waste and to every premise under the ownership or occupation of any person within the limits of BMC. Currently the byelaws are in process of modification to suit the requirement of SWM Rules, 2016

Kanjur MSW Processing Site:

- As per orders of Hon'ble High court and Hon. Supreme Court, the Government of Maharashtra handed over a plot admeasuring 141.77 hectares area at Kanjur to BMC on 24.10.2005 for developing MSW disposal site. Out of said 141.77 Ha. area, mangroves area admeasuring 23.36 ha. was retained by the Government of Maharashtra vide notification dtd.02.04.2012.
- Kanjur MSW Processing facility has received Environment Clearance from State Environment Impact Assessment Authority Maharashtra (SEIAA) on 05.12.2014 for 65.96 ha. non CRZ area.
- Further, Kanjur MSW Processing facility has received Environment Clearance from State Environment Impact Assessment Authority Maharashtra (SEIAA) on 29.10.2018 for Scientific processing of MSW in the balance 52.45 ha. of CRZ –III area. Renewed authorization from MPCB is received on Dt.23.08.2022. Accordingly total 118.41 ha. of land is available at Kanjur MSW processing facility.
- At present, processing of about 4900 TPD of MSW with bioreactor technology and about 1000 TPD of MSW with windrow composting technology is being carried out at Kanjur MSW Processing facility.

New Projects for scientific processing of MSW:

1) Development of Waste to Energy (WTE) Project at Deonar:

Work of Waste to Energy Project is awarded. About 600 TPD MSW will be processed scientifically and about 8 MW energy will be generated from this project. Consent to Establish (CTE) has been received for the project on 04.06.2022from MPCB. Project is expected to be commissioned by 04.10.2025.

2) Dumpsite Reclamation at Mulund Dumping Ground(MDG) in Mumbai by adopting suitable technology for existing garbage dump:

Work of Dumpsite Reclamation at Mulund Dumping Ground (MDG) is awarded to the contractor. After obtaining required clearances and mobilization of equipments and machineries, commencement of the project is started from 01.10.2019. Till date (20.04.2025) contractor has scientifically processed and disposed off about 46,81,490 MT of legacy waste. M/s MITCON Consultancy and Engineering Services Ltd. has been appointed as Project Management Consultant (PMC) for this project.

3) Scientific processing and disposal of Waste at village Karvale, near Talo:

As per Hon'ble High Court vide its order in PIL No.217 of 2009, Government of Maharashtra (GoM) has allotted about 52.10 Hectare land at village Karavale, Tal – Ambernath, Dist – Thane to BMC for Solid Waste Management Project. Out of this, 39.90 Hectare land is Government land and 12.20 Hectare is private land. Out of total 52.10 Hectare land, 35.82 Hectare lands is useful for the BMC (i.e. 29.715 Hectare Govt. land and 6.105 Hectare of private land) due to alignment of Alibaug Virar Corridor and the GAIL Pipeline passing through the designated plot. Out of 39.90 Hectare Govt. land Advance possession of Govt. land admeasuring 38.81 Hectare is given to BMC on 18.01.2016. The physical possession of Government land admeasuring about 12 Hectare has been taken over by BMC from Tahsildar Ambernath on 16.02.2019. Acquisition of remaining Govt. land and about 6.105 Hectare private land is being carried out through Collector Thane District. After completion of physical acquisition process, the land will be used for SWM Project activities of Brihanmumbai Municipal Corporation

4) Collection, Transportation, Processing and Disposal of Construction and Demolition (C and D) Waste in Mumbai.:

The BMC scientifically processes 1200 TPD of C and D waste. 2 plants of 600 TPD for Processing of C&D Waste has been commissioned in Nov 2024.

The work consists of Collection, Transportation, processing and Disposal of C&D Waste

Service Level Benchmarking :

- To monitor the performance of any ULB regarding its Service Delivery to the Citizens, MoUD has devised benchmarks for each service delivered.
- For Solid Waste Management Department there are 08 such benchmarks.

The benchmarks are elaborated below. (Current achieved values are mentioned in bracket)

Description of service	Target	Achieved
Coverage of SWM services through Door to Door collection	100%	100%
Efficiency of Collection	100%	100%
Extent of Segregation of Municipal Solid Waste	100%	86%
Extent of Municipal Solid Waste Recovered	80%	35%
Extent of Scientific Disposal of Waste at Landfill site	100%	88%
Efficiency in Redressing Customer Complaints	85%	94.93%
Extent of Cost Recovery in SWM Services	100%	100%
Efficiency in Collection of SWM Charges	90%	100%

Deep Cleaning Program :

The launch of the "Deep Cleaning Program" in December 2023 addressed air pollution concerns by deploying machinery to clean major junctions and wash roads. Led by the Hon. Chief Minister, this comprehensive program focused on concentrated cleaning efforts in one area at a time, including

repainting infrastructure, removing debris, and engaging the community. Response from citizens and active participation has created a mass movement. In 2024 more than 65,975 manpower, NGO workers, students, BMC staff has contributed to Deep Cleaning Program. More than 6,111 tons of debris, 1,150 tons of odd/ abandoned material and 3,113 tons of garbage was cleared. More than 6,777 machines and equipments were used. The program's success is evident and has been replicated across the state of Maharashtra.

Bio-Medical Waste (Management and Handling) Rules, 2016 :

Bio Medical Waste (Management and Handling) Rules, 2016 are notified by Ministry of Environment and Forest, Govt. of India, under Environment Protection Act 1986 vide Notification dated 28/03/2016. As per rules it is the duty of 'Occupier'/ 'Generator' to ensure that BMW is handled without any adverse effect to human health and environment by way of segregation, packing, transportation, storage, final treatment and disposal. An 'Occupier' is defined as an institutions like hospital, nursing home, clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank etc. which generate BMW.

BMC owns major hospitals, maternity homes, dispensaries and clinics. BMC is therefore considered to be an 'Occupier' and is required to dispose of the BMW generated in these institutions as per BMW Rules 2016.

Moreover as per the BMW sub rule 6, it is not an obligatory duty of BMC. to collect and treat the BMW generated from private health care establishments.

However, as per amended BMW Rules 2016, sub Rule no. 7, Municipal Corporations should provide suitable sites to private medical institutions for installation of common treatment facility without prejudice to the duty of 'Occupier'. Accordingly BMC has provided suitable land at Deonar dumping ground for installation of bio-medical waste treatment plant for disposal of bio-medical waste generated in Mumbai jurisdiction. .

The provisions under BMW Rules, states that the prescribed authority is Maharashtra Pollution Control Board and they are supervising the operation of the plant. An 'Authorization' to the plant operator of BMW treatment plant is issued by M.P.C.B. As per rule, it is also necessary to obtain an authorization from M.P.C.B. as a "Generator" who are generating the bio-medical waste.

As such, M.C.G.M. has installed integrated bio-medical waste treatment facility under the guidance of M.P.C.B. at Ghatkoper Mankhurd Link Road near Deonar dumping ground through M/s. SMS Envoclean (P) Ltd. The said facility has started its operation from May 2009. In all, M/s. SMS Envoclean (P) Ltd has put 46 nos. of specialized vehicles for collection of bio-medical waste from all heath care establishments. Those Health Care Establishments who are registered with the BMW treatment facility are being provided the services of BMW collection and disposal by M/s. SMS Envoclean (P) Ltd. As of now 14000 nos. of health care establishments are registered with the centralized facility. Daily approx 20 M.T. of BMW is being collected and treated at Deonar BMW treatment facility.

E-Waste (Management) Rules 2016 :

1. To avoid mixing of e-waste with municipal solid waste, BMC has proposed to appoint MPCB authorized e-waste recycling agency to set up e-waste collection centers in wards.

2. The work of setting up of e-waste collection centers can be given to MPCB authorized electronic producers/ e-waste collectors/ dismantlers/ recyclers.

Plastic Waste (Management) Rules, 2016 :

BMC has set up 46 dry waste collection and sorting centers for segregation of collected dry waste. The plastic waste is segregated from collected dry waste and is sent to the recyclers directly by the engaged waste pickers' association. Plastic shredding machines are installed at few DWSC locations in the city. Under EPR, companies like Bisleri and Coca Cola have set up plastic processing units across city.

The use and manufacturing of plastic carry bags below 50 microns is prohibited by law. The monitoring authority for the same is Maharashtra Pollution Control Board. SWM dept has developed banned plastic collection and storage facilities for the convenience of citizens. Use of media for spreading awareness about active public participation in minimizing use of banned plastic is being done. Around 336 MT of plastic waste has been collected since the ban has come into effect.

Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 :

Hazardous Waste Management Rules are notified to ensure safe handling , generation, processing, treatment, package, storage, transportation, use reprocessing, collection, conversion, and offering for sale, destruction and disposal of Hazardous Waste. The Rules lay down corresponding duties of various authorities such as MoEF, CPCB, State/UT Govts., SPCBs/PCCs, DGFT, Port Authority and Custom Authority while State Pollution Control Boards/ Pollution Control Committees have been designated with wider responsibilities touching across almost every aspect of Hazardous wastes generation, handing and their disposal.

14 POWER SUPPLY AND CONSUMPTION

BEST:

BEST is the distribution license to supply electricity in the old city limits of Mumbai. It cover 72 sq.km. (area from Colaba to Sion and Mahim). In FY 2024 – 25 the naximum demand of Mumbai City was 971 MW and power purchased was around 5060 Mus. To meet this demand, power is purchesed mainly from Tata Power is purchased from bilateral source, Power exchanges and Environment friendly renewable source.

Steps forward towatds Pollution Control:

1. PM-Surya Ghar Yojna: To enable the consumers to avali the benefits of PM-Surya Ghar Yojna necessary information of the scheme has been displayed on BEST website and electricity bills. Till 09/05/2025, 17 nos. Of new Roof Top Solar (RTS) connection have been released under this scheme. The installed capacity of Roof Top Solar (RTS) in BEST area of distribution (Munmbai-Ctiy) is 18.74 MW as on Mar 25.

2. BEST has singed Power purchase Agreement for procurement of 634 MW Wind Solar Hybrid power with Solar Energy Corporation of India (SECI). BEST will thereby be able to supply environment friendly green power to its consumers.

3. BEST is in process of singing a draft agreement for e-Retail Partnership Model with Energy Efficiency Services Limited (EESL) for promotion of Energy Efficiency Appliances like LED bulbs, tubes fans ect. These equipment will be made available at discounted rates to BEST electricity consumers and employees. On finalization of the proposal, affiliated links and QR codes of EESL's eCommerce proposed to permit EESL Channel partner to sell EESL appliances at various depot/billing counter i.e.in BEST premises.

4. Promotion of Digital Transaction: Digital receipts of Electricity bill payment was 72% and 68% the bill amount is colected in digital from.

5. Commissioning of Charging DSS (HV): A New HV DSS was commissioned in the premises of Electric House for EV Charging of BEST Double Decker Buses.

Tabel No. 14.1 : BEST Consumers, Connected load and Consumption for the year 2024 – 25					
Sr. No.	Consumers Category	Mumbai - City			
		Consumers #	Connected Load in MW	Consumpation in Million Units (Mus)	Avg. Monthly Consumpation (Mus) = E/12
A	B	C	D	E	F
1	HV Consumers	190	420.19	627.97	52.33
2	LV Consumers	1057318	4420.24	4218.29	351.52
	Total	**1057508**	**4840.43**	**4846.26**	**403.85**

Table No.14.2: Category wise Consumers, Connected Load and Consumption (2024-25)					
Sr. No.	Consumers Category	Mumbai - City			
		Consumers #	Connected Load in MW	Consumpation in Million Units (Mus)	Avg. Monthly Consumpation (Mus) = E/12
A	B	C	D	E	F
1	Residential	776495	2739.79	2272.82	189.40
2	Commercial	270588	1873.14	2190.91	182.58
3	Industrial	8819	187.34	321.52	26.79
4	E. V. Charging	1109	35.09	43.56	3.63
5	Agriculture	1	0.03	0.11	0.01
6	Public Lighting	496	5.04	17.34	1.45
	TOTAL	**1057508**	**4840.43**	**4846.26**	**403.86**

 # Meters installed on site

Maharashtra State Electricity Distribution Company Limited

Maharashtra State Electricity Distribution Company Limited Thane urban zone supplies electricity to Bhandup and Mulund area of BrihanMumbai Municipal Corporation. Bhandup and Mulund Zonewise information is as follows.

Table No. 14.3: MSEDCL's Consumers, Connected Load and Consumption in MU's for F.Y. 2024-25.							
Sr. No.	Category	Division Nam					
		Bhandup			Mulund		
		Total Consumers	Connected load (KW)	Consumption (Mu's)	Total Consumers	Connected load (KW)	Consumption (Mu's)
1	HV Consumers	92	157636	176.07	51	35422	42.49
2	LV Consumers	192199	354687	514.94	137017	448867	446.97
	Total	**192291**	**512323**	**691.01**	**137068**	**484289**	**489.46**

Table No. 14.4: MSEDCL Category wise Consumers, Connected Load and Consumption in MU's for F.Y. 2024-25.							
Sr. No.	Category	Division Name					
		Bhandup			Mulund		
		Total Consumers	Connected load (KW)	Consumption (Mu's)	Total Consumers	Connected load (KW)	Consumption (Mu's)
1	Residential	167821	274439.59	323.65	118911	354778	310.18
2	Commercial	19128	132967.9	130.62	15945	98642	107.68
3	Industrial	4601	47148	140.61	1107	9112	50.76
4	Others	741	57767.98	96.13	1105	21757	20.84
	Total	**192291**	**512323.47**	**691.01**	**137068**	**484289**	**489.46**

Table No. 14.5: MSEDCL's Consumers Average Consumption of energy in MU's for F.Y. 2024-25.			
Type of Consumer	Average Consumption		
	Bhandup	Mulund	Total
High Voltage Consumers	15	4	19
Low Voltage Consumers	43	37	80
Total	**58**	**41**	**99**

Table No. 14.6: MSEDCL's Categorywise Average Consumption of energy in MU's for F.Y. 2024-25.			
LT Categorywise consumers	Monthly Average Consumption in Mu's		
	Bhandup	Mulund	Total Avg. Consumption
Residential	27	26	53
Commercial	11	9	20
Industrial	12	4	16
Others	8	2	10
Total	**58**	**41**	**99**

15 ROADS, TRAFFIC AND TRANSPORT

Road Reforms :

About 2050 K.M. of roads are maintained by BMC. Out of which, 540.58 Km. length is in City division, 999.47 Km. length is in Western Suburbs division and 509.95 Km. length is in Eastern Suburbs respectively.

DP road proposed in the DPCR 2034 of BMC, are being developed on priority after acquisition of land by DP department. Considering the heavy traffic, Bottleneck, the RL of respective road is increased and Roads are widened as per recommendation of ward offices

Previously, various materials such as paver blocks, asphalt, and mastic asphalt were used for road construction work. However, due to several factors such as heavy rainfall in a short period in Mumbai, high vehicular traffic, traffic congestion, and trenches dug for utility services the condition of roads would deteriorate significantly. To make Mumbai pothole-free, the then Hon'ble Chief Minister of Maharashtra issued directives during a joint meeting held on 23rd July 2022. instructing the Brihanmumbai Municipal Corporation (BMC) to gradually convert all asphalt paver block roads into concrete roads. Accordingly, in the first phase, a total of 324 kilometers of roads were proposed, out of which 83 kilometers have been completed. In the second phase. 377 kilometers of road has been considered for improvement. Out of which 28 Kilometers length was improved till date and balance works are in progress. As part of these works, footpaths are also being upgraded in accordance with standards set for persons with disabilities. These contracts also include the installation of utility ducts for laying service cables. which will help reduce the frequency of trenching.

Under the access-control project on the Eastern and Western Express Highways, work orders have been issued for the improvement of one junction on the Eastern Express Highway and two junctions on the Western Express Highway. These works are currently in progress.

In City division approximately 16.7 Km. of roads are concretized in the vear 2024-25. In City area, major roads such as a BJ Devrukhkar Marg in "F/S" Ward and Dadasaheb Rege Mary in GN ward and other roads in City Division have been Concretized. In Western Suburbs approximately 98.75 Km of road are concretised in 2024-25. In Eastern Suburb approximately 12.71 k.m. of roads were concretized in financial year 2024-2025.

As per the guidelines of the Maharashtra (Urban Areas) Protection and Preservation of Tree Act. 1975, the existing trees are taken care of and provision of space for plantation of new trees is being made while constructing new concrete roads.

Traffic Engineering:

The work of Traffic Planning and Traffic Co-Ordination department is carried out under the control of Dy.Ch.Eng. (Traffic) who works under Ch. Eng. (Roads and Traffic). The department approves the parking design required for the proposed development on private and government land through an online system. This office look after the matters pertaining to prescription of regular line of road under the Municipal Corporation act, 1888 for widening of roads under the Municipal Corporation. Also, installation and maintenance of traffic signals on roads, installation of street name boards and directional boards, provision of traffic related facilities on roads, inviting tenders for internationalization of parking after the transfer of publ e parking to the Municipal Corporation. This department looks after the installation of various traffic amenities for smooth traffic movement, in co-ordination with traffic police.

Parking Policy:

In order to avoid traffic congestion due to unauthorized parking on roads tender procedure has been initiated for execution of on-street and off-street parking schemes. The contractors have been appointed for 65 pay and park scheme. Similarly out of 37 Public Parking Lot contractors have been appointed for 35 sites are in operation, which have been handed over Brihanmumbai Municipal Corporation under DC Regulation no. 33 (24) of 1991 and Regulation no. 33 (18) of DCPR 2034. There are 29 nos. of amenity parking places handed over to Brihanmumbai Municipal Corporation.

Scrapping of Abandoned Vehicles:

At present, metro and other infrastructure works are in full swing. As a result the roads are either completely closed or some lanes are closed for traffic Sometimes trattic has to be diverted. In such a situation, if there are abandoned vehicles on the road it causes traffic congestion. To take action against abandoned vehicles this office has appointed contractor for Identifying and scrapping abandoned vehicles in ES and WS. However the tender for its division is in process. I his will help in movement of traffic smoothly.

Multilevel Robotic Car Parking:

The contractor has appointed for the 546 capacity of robotic multilevel parking at neat Mumbadevi temple, the 475 copathy of robotic multilevel parking at Central Mutunga Railway Station in F/N ward and 194 capacity of robotic multilevel parking at Flora Fountour (Hutatma Chowk) near Apsara Pen shop. Also contractor appointed for the capacity of 640 Four Wheeler and 11. Two Wheeler multilevel robotic car parking at Worli Engineering Hub in GS ward. Accordingly, parking capacity of around 1850 will be available in near future.

LED Lights:

There are about 1,41,145 Sodium vapor lamps in Mumbai out of which 1.36.211 conventional lamps have been replaced by LED. It is proposed to complete balance 4,766 LED lights in Mumbai for year 2025-26. This causes more savings in energy bill. This savings in energy will go up as more lights will be converted to LED.

Traffic Signages:

Brihanmumbai Municipal Corporation has appointed contractor for modern signalise with up gradation of signages in City. Western Suburbs and Eastern Suburbs for an amount of nearly 60 Crores each for the period of twe years and the work is in progress.

Initiative on Road Safety and High Risk Intersections (Black Spots):

As reported by the traffic police, 45 High Risk Intersections (black spots) in Brihanmumbai in 2022. For remedial measures of the said High Risk Intersections (black spots). BMC is taking help of NGO. M/s. Bloomberg Philanthropies as a consultant. The aim is to review the High Risk Intersections (black spots) for conducting various engineering and traffic flow studies and to undertake appropriate engineering and planning interventions that can bear higher impact n saving lives on the road. Accordingly. NGO and his partner has submitted being the report to the Chief Eng (Roads and Traffic). As per the said report, the necessary action will be taken or remedial measures. Invitation of tender is in process for the improvement of Black Spot.

Area Traffic Control (ATC):

At present 258 Signals in Greater Mumbai has already been converted into fully adaptive automated Signal System and are working satisfactorily. The maintenance of remaining 427 conventional system and 184 flashing beacons are being carried out.

Total Traffic Signals-667

Total No. of Road Lamps-1,41,145

Total No. of Flash beacons -208

16 BRIDGES IN MUMBAI

The Chief Engineer (Bridges) Department has started some bridge-related works in the city, eastern suburbs, and western suburbs between April 2024 and March 2025. The details regarding these works are given below.

1. Malad : Construction of one-way Flyover long Marve Road For LMVs at Mithi Chowky Junction with a South Bound Arm on Link Road Malad (W) in P/North Ward.
2. Borivali : Phase II of demolition and reconstruction of Shrikrishna Nagar bridge in Borivali E
3. Andheri : Soon to open – Reconstruction of Gopal krishna Gokhale Bridge connecting N.S. Phadke road to S.V road in Andheri. In KE and KW ward (Railway Portion and Muncipal Portion)
4. Nahur : Widening and reconstruction of Nahur ROB (Nahur phas-I south portion)

Major works undertaken during year 2024-25

1. Construction of 45 mtrs. Wide elevated road from Kandarpada, like road at Dahisar (W) in BMC Limits to Mira Bhayander (W) in MBMC Limitis, (Coastal Road last Lag).
2. Mumbai Coastal Road North from Versova to Dahisar (Into Six Packages i.e. A.B.C.D.E.and F)
3. Construction of Approaches for ROB across Vidyavihar Railway station connecting lbs marg and RC Marg in "N" Ward.
4. Construction of ROB at Vikhroli Rialway station (Excluding Railway span and Slip road)
5. Propoesd Construction of flyover Arm-I and Arm-2 at T junction of Sion Panvel Highway. Near Maharashtra Nagar in M/E ward
6. Design and Construction of bridge between Madh and Varsova in K/W and P/N Ward.

The statastical information (April 2024 to March 2025) of bridges in City, Eastern and Western Sub. Under Chief Engineer, Bridges

Sr. No.	Description	City	Western Suburb	Eastern Suburb	MMRD handed over (WEH &EEH)	Total
1	Bridge Over Nalla or River (Vehicular) (BR)	12	143	145	21	321
2	Road over Bridge (Vehicular) across railway (ROB)	30	10	04	00	44
3	Bridge across road junction or over roads (Flyover)	12	05	06	14	37
4	Foot Over Bridge (FOB)	32	27	21	21	101
5	Skywalk	05	10	08	00	23
6	Foot Over Bridge over Riilway Track (FOBRL)	11	14	07	00	32
7	Vehicular Subway (VS)	00	06	01	11	18
8	Pedestrain Subway (PS)	09	06	05	15	35
9	Underpass	00	00	00	00	00
10	Freeway	01	00	02	00	03
11	Tunnel	00	00	01	00	01
	Total	112	221	200	82	615

Surface Transport:

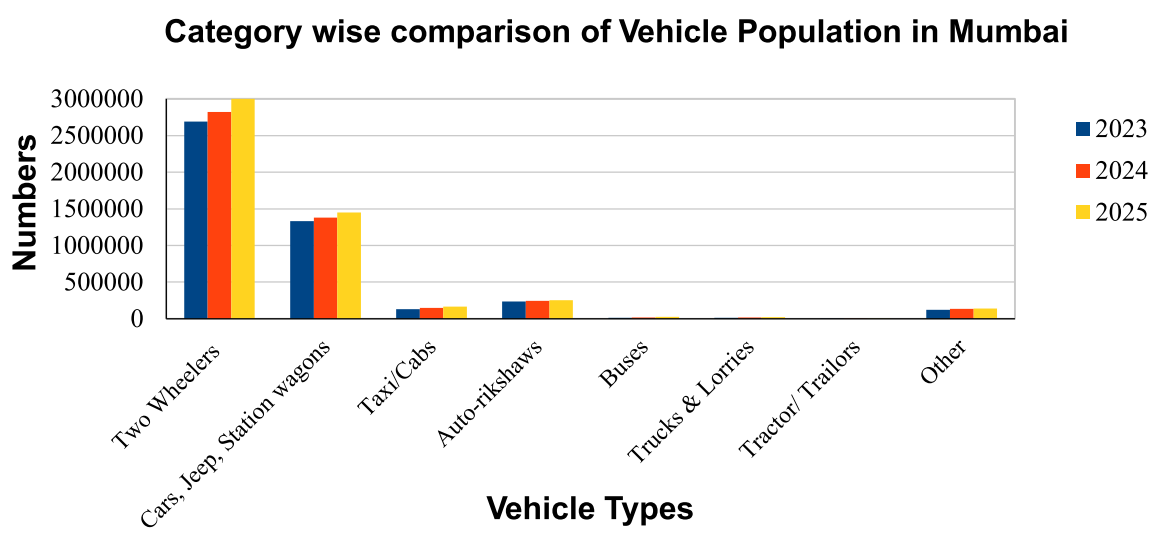
There are different types of vehicles plying on the roads of Mumbai every day. They consist of cars, taxis, trucks, buses, three-wheelers, two-wheelers etc. The total number of vehicles in Mumbai as on March 2025 is 50,54,916. Their composition is 59.34% two-wheelers, 28.72% cars, jeeps and station wagons, 3.27% taxis/cabs, 5.02% auto rickshaws, 0.48% buses, 0.42% Goods vehicles, 0.02% tractors/trailers and others 2.72%. As previous year increasing number of vehicles is 6.2% in Mumbai city. Table no. 16.1 shows number of different vehicle in Mumbai.

Table No. 16.1 Category-wise comparison of vehicle population 2023-25

Sr. No.	Category	As on 31st March		
		2023	2024	2025
1	Two Wheelers	2690367	2820296	2999829
2	Cars, Jeep, Station wagons	1329795	1381352	1451975
3	Taxi/Cabs	131900	146739	165204
4	Auto-rikshaws	235602	244959	253993
5	Buses	13372	15009	24100
6	Trucks and Lorries	11908	16624	21056
7	Tractor/ Trailors	425	821	1098
8	Other	123842	134176	137661
Total		**4537211**	**4759976**	**5054907**

Source : This information is received from RTO, GoM

Graph No. 16.1 (A): Category wise comparison of Vehicle Population in Mumbai



Graph 16.1 (B): Category wise Vehicle Population in Mumbai

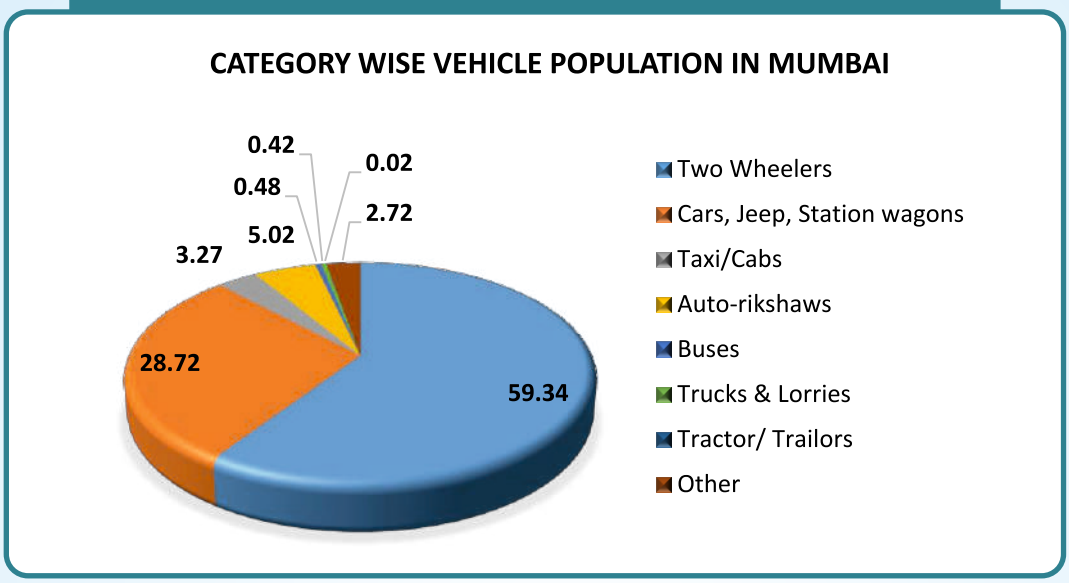
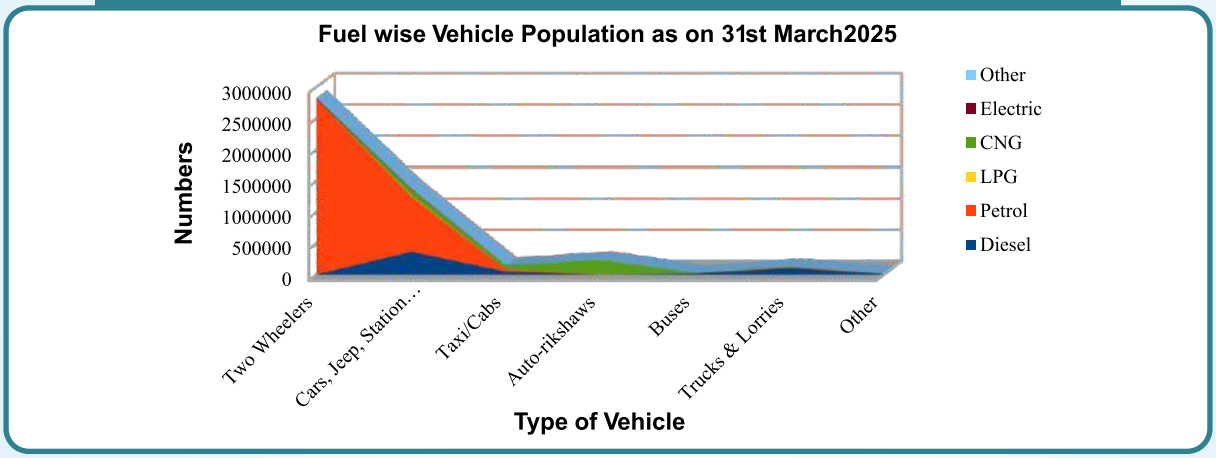


Table No 16.2 – Fuel wise Vehicle Population in Greater Mumbai Office as on 31st March 2025

Sr.No.	Category	DISEL	PETROL	LPG	CNG	ELECTRIC	OTHERS	TOTAL
1	Motor Cycles	0	2277608	0	971	23686	247	2302512
2	Scooters	0	665046	0	0	16	0	665062
3	Moped	0	32175	0	60	20	0	32255
	Total Two Wheelers	**0**	**2974829**	**0**	**1031**	**23722**	**247**	**2999829**
4	Cars	343594	938569	10481	103132	19088	3754	1418618
5	Jeeps	29040	480	4	87	0	0	29611
6	Stn. Wagons	3039	707	0	0	0	0	3746
		375673	**939756**	**10485**	**103219**	**19088**	**3754**	**1451975**
7(a)	Taxis meter fited	**1982**	1575	532	40726	0	77	44892
7(b)	Luxury/ Tourist Cabs	**44364**	50685	378	21440	2488	957	120312
		46346	**52260**	**910**	**62166**	**2488**	**1034**	**165204**
8	Auto-rikshaws	20	63	4	248176	574	5156	253993
9	Stage carriages	4482	552	0	2015	114	0	7163
10	Contract carriages/ Mini Bus	10424	184	1	1260	987	328	13184
11	School Bus	2833	177	1	712	28	2	3753
12	Private Service Vehicle	1048	23	2	96	0	0	1169
		18807	**999**	**8**	**252259**	**1703**	**5486**	**279262**
13	Ambulances	1902	462	0	147	0	4	2515
14	Articulated/ Multi	295	0	0	0	3	20	318

Sr.No.	Category	DISEL	PETROL	LPG	CNG	ELECTRIC	OTHERS	TOTAL
15	Truck and Lorries	17378	1301	0	2198	178	1	21056
16	Tanker	1597	2	0	0	0	0	1599
17	Delivery Van (4 wheelers)	67382	8245	4	9617	238	110	85596
18	Delivery Vans (3 Wheelers)	25462	4811	9	5567	958	106	36913
		112114	**14359**	**13**	**17382**	**1377**	**237**	**145482**
19	Delivery Van (3 wheelers)	671	11	0	0	3	0	685
20	Trailors	382	2	0	0	0	29	413
		1053	**13**	**0**	**0**	**3**	**29**	**1098**
21	Others	8000	843	2	192	473	41	9551
		9902	**1305**	**2**	**339**	**473**	**45**	**12066**
	Total	**563895**	**3983521**	**11418**	**436396**	**48854**	**10832**	**5054916**

Graph 16.2: Fuel wise Vehicle Population as on 31st March 2025



There are 1,65,204 metered taxis in Mumbai operating on petrol, diesel, CNG and LPG as on 31st March 2025. CNG, LPG and Electric which are regarded as clean fuel. More than 39.7% meter taxis and 97.94% rickshaws are running on clean fuel CNG, LPG and Electric.

Table No 16.3 –-New Vehicles Registration during April 2024 to March 2025

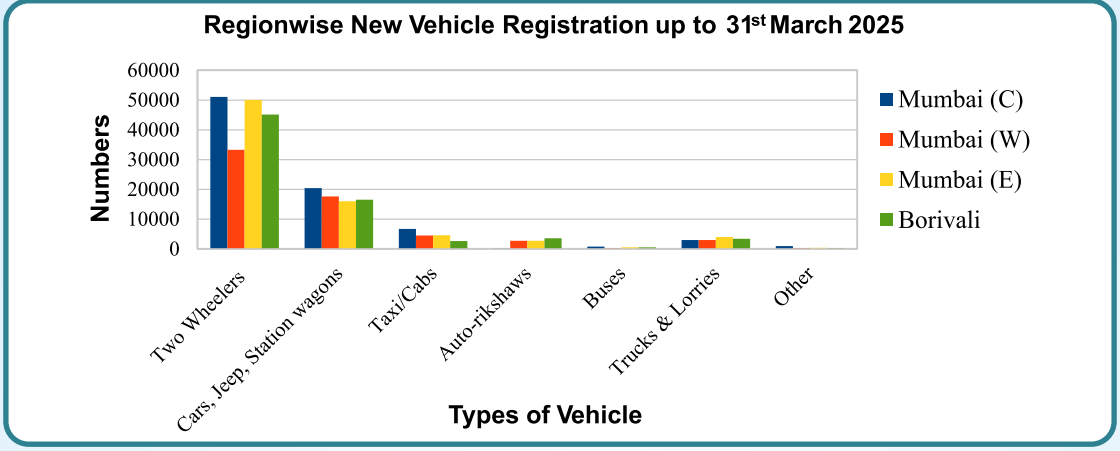
Sr. No.	Category	Mumbai (C)	Mumbai (W)	Mumbai (E)	Borivali	Gr. Mumbai (Total)
1	Motor Cycles	50999	33294	49996	45121	179410
2	Scooters	10	6	0	5	21
3	Moped	18	10	23	51	102
	Total Two Wheelers	**51027**	**33310**	**50019**	**45177**	**179533**
4	Cars	20380	17651	16044	16548	70623

Sr. No.	Category	Mumbai (C)	Mumbai (W)	Mumbai (E)	Borivali	Gr. Mumbai (Total)
5	Jeeps	0	0	0	0	0
6	Stn. Wagons	0	0	0	0	0
7(a)	Taxis meter fited	148	0	1	0	149
7(b)	Luxury/ Turist Cabs	6517	4545	4570	2684	18316
8	Auto-rikshaws	3	2705	2746	3580	9034
9	Stage carriages	0	0	202	0	202
10	Contract carriages/Mini Bus	618	224	313	562	1717
11	School Bus	190	14	7	0	211
12	Private Service Vehicle	4	9	13	0	26
13	Ambulances	82	55	51	32	220
14	Articulated/ Multi	6	0	30	5	41
15	Truck and Lorries	125	217	1496	2594	4432
16	Tanker	74	21	188	140	423
17	Delivery Van (4 wheelers)	2275	1840	1353	103	5571
18	Delivery Van (3 wheelers)	373	797	850	585	2605
19	Tractors	28	121	48	1	198
20	Trailors	73	1	3	2	79
21	Others	851	206	267	236	1560
		82774	**61716**	**78201**	**72249**	**294940**

Source : RTO, GoM

In Mumbai region about 2,94,940 various types of vehicles are registered during April 2024 to March 2025. In this 60.87% of two wheelers, 23.94% of cars, jeeps and station wagons, 6.26% of taxi/cabs, 3.06% of Auto rikshwa's, 0.73% of buses, 4.43%, goods vehicles 0.09% of Tractors/Trailors and 0.6% of other vehicles.

Graph 16.3: Regionwise New Vehicle Registration up to 31st March 2025



BEST – Transport

1. Transport Engineering Department: BEST Undertaking have 612 nos. of self own buses and 2119 no. of buses on wet lease model. Total 2731 no. of buses are used for the public transportation. 91% of the buses are environment friendly (CNG and Electrical).

2. Enhancement of E-Bus fleet: Presently 635 electric buses are in operation and contract work order of 4950 Electric buses (4750 SD and 200 DD) is placed. By year 2024 end, more than 50 % fleet of Undertaking will be electric and by 2027, entire fleet of BEST Undertaking will be electric buses. This will help to reduce the pollution of Mumbai city as 318296 tons of CO2 per year will be reduced by operation of these buses.

3. Premium Electric bus service: BEST Undertaking have started premium AC bus service for daily car owners. Till date 100 nos. of electrical AC buses have been operated under the project.

4. Private vehicles charging stations: To promote electrical vehicles in Mumbai city, BEST Undertaking have installed private charging stations at 55 locations in Mumbai city and suburban for 3 wheelers, private cars, delivery Vans and Electric buses.

5.E-Cars for Officers and Staff of various departments: Total 141 no. of electrical cars are being used for internal use of officers and Staff of various departments.

BEST Undertaking is a PSU into public city transport and electric supply for citizens of Mumbai city. The hazardous waste generated that is the drained engine oils, grease, batteries, etc which are used for preventive maintenance of buses and the Transformer oil, lead, etc used by Electric supply department, is collected at our centralized location at Oshiwara Depot and is disposed off through registered recycling firms, as per the guidelines of Pollution Control Board. Periodic statement is submitted to Maharashtra Pollution Control Board by our Material Management Department. The summary of hazardous waste disposed off through registered recycling firms; for the period of April -24 to Mar-25 is as below:

Sr. No.	Description	Approx. Total Qty.
1	Used oil/waste oli	227000 Liters (204.30 MT)
2	Lead sheets	04 Metric Tonnes
3	Used batteries (Apr-24 to Mar-25)	572 Nos. (18496 kg.)

BEST is a member of M/s Mumbai Waste Management Pvt. Ltd., Taloja (the authorized firm of Maharashtra Pollution Control Board, under membership no. MWML-MUM-HZW-MUM-2899) for disposal of used filter. Periodically the used oil filters accumulated at Depots are sent to this disposal facility.

17 MUMBAI COASTAL ROAD

Mumbai Coastal Road Project (South):

The Mumbai coastal road project (South) is one of the most prestigious projects undertaken by BMC This Southern Coastal Road Project of 10.58 km from Princess Street Flyover to Worli End of Bandra Worli Sea Link is proposed to resolve the traffic congestion in Mumbai. In addition this road will provide several environmental friendly features to the city. The proposed Coastal Road is having eight lanes (4+4) configuration comprising road based on reclamation, Bridges, elevated roads and tunnels.

The Mumbai Coastal Road Project will reduce the travel time, de congest existing roads, reduce the air and noise pollution levels, improve public transport facility due to proposed dedicated BRTS lane and also generate much needed additional green spaces which will also decrease CO2 emission.

The Ministry of Environment, Forest and Climate Changes (MoEFandCC) has issued CRZ Clearance for the Project on 11.05.2017 and amendment on 18.05.2021. Also, the NOC's from other concerned departments of Central Government and State Government have been obtained for Mumbai Coastal Road (South) Project.

The total Estimated Project Cost is Rs. 13983.83 Cr. This Project is divided into three packages viz. Package-IV (From Princess Street Flyover to Priyadarshini Park), Package-1 (From Priyadarshini Park to Baroda Palace) and Package-ll (From Baroda Palace to Worli End of Bandra Worli Sea Link). The design and Build work for Package I and Package IV is under progress through the contractor M/s. Larsen and Toubro Ltd. and for Package II through the contractor M/s. H.C.C.- H.D.C. (joint Venture). For each Package one Project Management Consultant (PMC) has been appointed as Employer's Personnel for supervisions and other allied works. Accordingly M/s Yooshin Engineering Corporation+ M/s Tec Cuatro S.A(JV), M/s Louis Berger Consulting Pvt. Ltd and M/s Egis India Consulting Engineers Pvt. Ltd Cullen Grummit and Roe(UK) Ltd.(IV) have been appointed as PMCs for Package IV, I and II respectively. Also one General Consultant M/s AECOM Asia Co. Ltd is appointed as Employer's representative for co- ordination and monitoring the entire project through all PMCs and other allied works.

This work is in progress since October 2018 and expected to be completed in May 2025. The required Budget Provision of Its. 2,099.93 cr. has been made in the financial year 2024-2025.

Currently coastal road is open for following completed portion of road for vehicular traffic, from 7 a.m. to 12. a.m. from Monday to Sunday le 17*7:

1. South bound carriage way from bandra worli sea link (Rajiv gandhi sea link), Bindu Madhav Thackeray Junction, Rajani Patel Junction (Lotus junction) and Amarsons Garden to Marine drive.

2. Northbound carriage way from Marine drive, Amarsons Garden, Haji Ali and Rajani Patel Junction (Lotus junction) up to bandra worli sea link (Rajiv gandhi sea link)

Table No. : 17.1 The sallent feature of the Coastal Road Project are	
Length	10.58 Km.
Road on reclamation	4.35 Km.
Tunnel (3 Lanes, 11m internal dia.) X 2 Tubes	2.07 Km.
Bridges(4+4Lanes)	2.19 Km.
Interchanges (Amarson, Haji AliandWorli)	03 Km.
Seawall Length	7.47 Km.
Reclamation area	111 Hectare
Recreation area (Gardens, Landscape, Parks etc.)	70 Hectare
Promenade (20 m wide)	7.50 Km.
Pedestrian Underpassess	16 nos.
Underground Car parks	4 Locations (about 1800-Lots)
Generation of approximately employment opportunity due to proposed Coastal Road	1,00,000 (Manpower)
BRTS, dedicated lanes for Ambulance	-
Sophisticated Saccardo Nozzle Ventilation system and special fire protection board intunnel	-
Flood risk minimizes due to construction of Sea Wall and better designed drainage system along with automated anti-flood gates.	-

Salient Features of Site Environment Management Plan for the Project

Brihanmumbai Municipal Corporation has awarded Civil Contracts of all the three Packages of Coastal Road to recognized International Contractors like LandT, HCC-HDC (JV).

The following compliance are done/ in progress through all contractors regarding Environmental Compliance mentioned in Site specific Environment Plan as well as requirements of MOEFandCC applicable to them.

- Air and Noise Monitoring is being done on sites and compared with Pre construction results (Base-LineData) and Standards of MOEF and MPCB

- For controlling dust, Contractors are doing Water Sprinkling on their sites during construction work.Wheel Wash Facilities is also provided at every Main Entrance and Exit of site where Vehicle Movement is there.

- Noise Barriers are being provided at all Critical Locations like Near Schools and Hospitals etc. during Construction.

- All Construction vehicles are provided with Noise Mufflers, Good Silencers on sites. All Construction sites are barricaded by barricading boards in addition to Noise Barriers to Control Noise and demarcate site from General Public and Road users.
- Preventive Maintenance schedule for all construction Machinery at site. All construction machinery is having PUC certificates. Preventive Maintenance of Machinery will also reduce noise from Machinery.
- All rotating parts of construction machineries have provided with canopies and grills to control rotating parts noise during construction phase.
- Contractors have provided Bio Toilets on sites.
- The corals noticed along the Mumbai coast in Worli region and in Haji Ali region covering an area of 0.251 m2 and 0.11 m2 respectively. Brihanmumbai Municipal Corporation has taken the necessary permit from the Chief Wildlife Warden to translocate the Corals and appointed CSIR-NIO a Govt. agency through Contractors to carry out the work of translocation of corals and successfully carried out translocation of corals by Brihanmumbai Municipal Corporation through the CSIR-NIO agency in the presence of authorized officers of Mangrove cell of Forest department. No damage was found to the other wildlife species during translocation process. Further regular monitoring to observe coral health and survival in the region has been carried out by CSIR-NIO for one year and as mentioned in monitoring report of NIO, it is found that survival rate of Corals is100% in May 2021.
- National Institute of Oceanography (NIO), Dona Paula, Goa is engaged for investigation on impact of Coastal Road project waves, water levels, seawater quality and related environemntal aspects during progress of work and 2 years in operation phase.
- Brihanmumbai Municipal Corporation has deposited 2% of total cost of the project (i.e. Rs.175.33 Cr) for conservation of coastal and marine biodiversity to the Mangrove Foundation of Maharashtra. The Mangrove Cell tied up with National Institute of Oceanography (NIO), Mumbai for establishment of artificial reef along the project coast as a pilot project. Artificial reef is a human created underwater structure, typically built to promote marine life. It generally provides hard surfaces were algae and invertebrates such as barnacles, corals and oyster attach. The accumulation of attached marine life in turn provides food and shelter for assemblages of fish and it enhances marine ecosystem.

18 EDUCATION

As per the directives laid under Section 61 (Q) of the MMC ACT 1888, providing free Primary Education to the Children of Mumbai, is obligatory and binding duty of the Municipal Corporation of Greater Mumbai. Since 1907, Brihanmumbai Municipal Corporation Education Department has been accomplishing this responsibility.

Various schemes and activities are being implemented in the municipal schools to maintain environmental balance

At the beginning of the academic year 2024-25, tree plantation programs were organized in every school in City East, West Zone. These included medicinal plants, shade- giving trees, and other trees beneficial to the environment. Along with flowering and fruit- bearing trees, medicinal plants and vegetable swereal so planted. Specially, school-based kitchen gardens were developed. Emphasis was given to compost, vermicomposting, and organic farming practices.

Under the campaign "Mukhyamantri, Majhi Shala Sundar Shala" (Chief Minister's My Beautiful School), tree plantation and tree conservation drives were effectively implemented in every school. Schools like Collector Colony Municipal Hindi School (First rank), Worli C face English (Second rank) and Ramkrushn Paramhans Municipal school (Third rank) Among private primary schools, Shree Ram Welfare Society High School (first place), Michael High School and Junior College (second place) and The B.G.P.C. Institute (third place) were found to be notable efforts in plantation and conservation activities

To create environmental awareness in society, active participation from parents and the community was encouraged. Under the concept **"One Tree - My Responsibility,"** students were given responsibility fornurturing the trees. Eco Clubs were established in schools **A Value Education Project** was under taken to nurture emotional connections withtrees (TreeDialogue- building affection by interacting with leaves and flowers).

Essay competitions on the theme **"My Earth"** were conducted, high lighting issues such as increasing pollution, use of public transport, and water conservation. Street plays were performed, and environmental awareness was promoted through the **Balakatsav (Children's Festival)** and cultural competitions.

Waste segregation into dry and wet categories was implemented. Wet waste, especially leftover food from the mid-day meal, was used to make compost.

External organizations provided **counselling for adolescent girls** on health-related topics. **Sanitary napkin vending machines** were installed in every school, and maintenance was ensured.

Proper Use of Water:

Awareness regarding appropriate water use, conservation, reuse, and importance of water was spread through street plays, morning rallies, parent meetings, awareness sessions, and cultural programs. Each class undertook a Zero Waste Campaign. Under the guidance of work experience teachers, students were trained to create useful and innovative items from waste. Exhibitions and craft competitions based on **"Best out of Waste"** were organized. Painting, essay, and elocution competitions aimed at shaping public awareness on proper water usage were held.

Scout and Guide:

Students actively participated in the Scout and Guide movement. They demonstrated various community service programs and organized rallies. A matter of pride- **VPS English School received a state-level award** from the Scout and Guide division.

Housekeeping:

Appointed housekeeping staff ensured that every school remained clean, well-maintained, and beautiful in all aspects. Special attention was given to keeping water rooms and boys' and girls' toilets clean.

Music and Art:

Music and art teachers themselves composed and presented street plays on various important topics. They played a key role in both cultural and educational activities.

Sri Ganesh Idol Clay Workshop:

Environmental damage due to use of Ganesha idols made of plaster of Paris; Also, in order to convey the message of public awareness about the degradation of environment due to water pollution to the citizens, students should be aware of environmental awareness through a workshop on behalf of Art Academy cademy under Brihanmumbai Municipal Corporation Education Department; Also, clay work workshop is organized every year in order to allow students to handle different mediums of art through Shadu clay in the subject of sculpture and to give scope

19 ENVIRONMENT and CLIMATE CHANGE

Environment and Climate Change Department:

Mumbai faces significant environmental challenges, including rapid urbanization, inadequate waste management, pollution, and the impact of climate change. Specifically, air and water pollution, deforestation, and waste-related health hazards pose serious risks to the city's population and ecosystem. Brahanmumbai Municipal Corporation views seriously, the environmental challenges in Mumbai and to mitigate this issue a full-face Environment and Climate Change department is created under Dy. Municipal Corporation (Environment) with the sanction of Administrator (Municipal Corporation) vide resolution no. 328, the post of Ch.Engr. (Env. and CC) 1 no., Dy.Ch.Engr (Env. and CC) 2 nos, Dy. M.A. 1 no, St. M.A. 2 nos, and Sub Engr. 33 nos, along with existing posts. The specific role related to creation of sustainable environment in Mumbai is assigned to this newly created Environment and Climate Change department. It will become easy to keep watch on sources of emission at ward level. Also, the work force will implement various measures for mitigation of climate change risks as mentioned in 6 sectors of Mumbai Climate Action Plan.

The National Clean Air Programme (NCAP) is a national-level initiative launched in India by Ministry of Environment, Forest and Climate Change (MoEFandCC) in January 2019, to address air pollution, particularly in 131 non-attainment cities. Air Action Plan has been prepared to improve the Air Quality of Mumbai City bring it to the Ambient Air Quality Standard, as per the guidelines of Central Pollution Control Board and Maharashtra Pollution Control Board which has been approved by the C.P.C.B. on 24 October 2019. It aims to reduce particulate matter (PM) pollution by 20-30% by 2024, with a revised target of a 40% reduction by 2026. This is achieved through city-specific action plans that include measures like strengthening monitoring networks, reducing vehicular and industrial emissions, and increasing public awareness. Maharashtra has the highest 19 non-attainment cities.

The Environment and Climate Change department is nodal agency for NCAP and Being a co ordinating agency, BMC has informed all internal stake holders ie. departments of BMC and external stake holders to start the implementation of action points as per approved Air Action Plan. The BMC departments such as Ch.E.(MandE), Ch.E. (Roads and Traffic), Ch.E.(SWM), Ch.E.(D.P.), Executive Health Officer, Superintendent of Garden, Assistant Commissioners of all wards are the main internal stake holders responsible for implementing Air action plan. The R.T.O., Traffic Police, M.MR.DA, BEST, Railway, Metro Railway, M.S.E.B., Reliance, M.S.R.D.C., MHADA, Transport Ministry, Petroleum Ministry, Mining Ministry are the external stake holders that have important role in the Air Action Plan. The Municipal Commissioner of BMC is the Chairman of City Level Co-ordination Committee.

Govt. of India has given funds to achieve the goals set for improvement in Air Quality of the City through NCAP funds and from 15th Finance. Also, BMC has received funds from Govt. of India for improvement in drinking water system. These funds are from FY 2020-2021 to FY 2025-2026.

The details of NCAP fund utilization:

BMC received Rs. 9.50 Cr. in financial year 2020-21 under NCAP which is fully utilized in 4 activities. These are:

- Public Awareness and Capacity Building: Included creative agency appointment, radio jingles, flex banners, art wall paintings, and newspaper advertisements. (Expenditure: Rs. 1.5344 Cr, Status: Completed).
- Mechanical Sweeping: Procurement of 7 Mechanical Power Sweeping Machines along with their Operation and Maintenance (OandM). (Expenditure: Rs. 4.7663 Cr, Status: Completed)
- Traffic Signal Installation: Installation of conventional road traffic signals at 5 specific locations to aid traffic synchronization. (Expenditure: Rs. 0.8747 Cr, Status: Completed).
- Crematoria Improvement: Various works related to electrical and PNG-based crematoria at 6 loc-ations (Vandarpada, Underai, Pratapnagar, Reay Road Hindu, Charai, Shivaji Park Cemeteries). (Expenditure: Rs. 2.3246 Cr, Status: Completed)

The Details of XV Finance Commission (FY 2020-21 to 2025-26) Air Fund utilization:

The Environment and Climate Change department is also nodal agency for XV Finance Commission (FY 2020-21 to 2025-26) Air and Water fund distribution, utilization and reporting.

- Total Proposed Allocation (FY 20-21 to 25-26): Rs. 1240.25 Cr.
- Funds Received (FY 20-21 to 22-23): Rs. 620.11 Cr. (Note: Only 75% of the sanctioned amount for FY 22-23 was received due to performance assessment).

Component-wise Allocation Guidelines (State Govt.):

- Electric Vehicle (EV) Component: 80%
- Dust Mitigation: 8%
- Industries and Other: 2%
- Construction and Demolition (C&D) Activities: 4%
- Bakeries and Crematoria: 3%
- Air Quality Monitoring and Strengthening: 3%

Utilization Status

- Actual Expenditure: Rs. 532.67 Cr.
- Committed Expenditure (by 31.03.2025): Rs. 52.3162 Cr.

- Total Utilization (Actual + Committed): Rs. 584.9862 Cr, representing 94.33% of the funds re-ceived up to FY 2022-23.
- Utilization Certificates (UCs) have been submitted for FY 2020-21, 2021-22, and 2022-23.

Details of Activities Undertaken with XVFC Air Funds:

- Actual Expenditure (Rs. 532.67 Cr total):
- EVs: Procurement of 2100 Single Decker (SD) and 200 Double Decker (DD) Electric Buses on a wet lease model (Expenditure: Rs. 493.39 Cr) allocated. In that 466 Single Decker (SD) and 50 Double Decker (DD) buses supplied.
- Crematorium: PNG Crematorium work at 10 locations (Expenditure: Rs. 8.42 Cr). Outoff 10 Crematorium 8 are completed and commissioned. Installation work in rest 02 Crematorium is completed however the MGL connection is awaiting

Air Quality Monitoring:

- Procurement and Installation of 5 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) (Expenditure: Rs. 4.24 Cr).
- Status: Installed and commissioned, data available on CPCB Portal.
- Identification of Air Pollution Hotspots by NEERI (Expenditure: Rs. 0.2478 Cr). Status: Study completed, final report submitted Jan 2025.
- Dust Mitigation: Design, Supply, Installation, Testing and Commissioning (SITC) of Out-door Dust Mitigation Units (ODMU) and Dust Monitoring Systems (DMS) at 5 locations (Expenditure: Rs. 2.72 Cr). Status: Completed.
- Waste Management: SITC of 8 Plasma Technology based Modular Domestic Hazardous Waste (DHW) Disposal Units (4 TPD capacity each) (Expenditure: Rs. 21.34 Cr). Status: Installation and Commissioning Completed.

Renewable Energy:

- 20W LED Solar Street Lighting System at 6 locations (Expenditure: Rs. 1.08 Cr). Status: Completed.
- SITC of Solar Energy systems at 4 High Schools (G/S Ward) (Expenditure: Rs. 0.88 Cr). Status: Completed.
- SITC of 35 kW Solar Power Plant at Sewerage Operation Dept building (Ex-penditure: Rs. 0.32 Cr). Status: Completed.
- Awareness: Workshop cum Awareness Program on Health Impact of Air Pollution (Ex-penditure: Rs. 0.02 Cr). Status: Completed.

Committed Expenditure (Rs. 52.3162 Cr total):

- Liabilities booked or payments pending for ongoing/completed works by March 31, 2025.
- C&D Waste: 1200 TPD C&D Waste Processing Plant (2 plants x 600 TPD) - Collection, Transportation, Disposal (Liability: Rs. 24.68 Cr). Status: Commissioned Nov 2024.

- Traffic System: Expert services from IIT Bombay for Fully Adaptive Traffic Control (FATC) system assessment and conversion of 70 conventional signals (Liability: Rs. 0.50 Cr). Status: Study completed, recommendations submitted.
- Crematoria: PNG Crematorium work at 10 locations (Liability: Rs. 10.09 Cr).

Dust Mitigation:

- ODMU and DMS at 5 locations (Liability: Rs. 0.97 Cr). Status: Payment pending for one unit.
- Greening of Open Areas, Gardens, Community Places, Schools and Housing Soci-eties (Liability: Rs. 12.16 Cr). Status: Work in progress.
- Air Quality Monitoring:
- Identification of Air Pollution Hotspot by NEERI (Liability: Rs. 0.1162 Cr). Status: Payment pending for Hotspot Action Plan.
- O and M of 5 CAAQMS (Liability: Rs. 2.38 Cr).
- Waste Management: SITC of 8 DHW Disposal Units (Liability: Rs. 0.12 Cr). Status: Payment pending for commissioning.
- Renewable Energy: Installation of Solar Panels at 'E' ward office, swimming pool, and M/West schools (Liability: Rs. 1.30 Cr).

Details of Activities Undertaken with XVFC Water Supply and Sanitation Grants in Million-Plus Cities:

The Fifteenth Finance Commission (XVFC), in its final report covering the award period 2021-22 to 2025-26, recognized the distinct challenges faced by large urban centres. Acknowledging that over 60% of India's urban population resides in urban agglomerations (which include Urban Local Bodies (ULBs), census towns, and outgrowths), the Commission recommended a differentiated approach to grant allocation for ULBs. Urban areas were broadly categorized: Category-I comprising urban agglomerations/cities with a population exceeding one million (Million-Plus Cities or MPCs), and Category-II covering all other cities (Non-Million Plus Cities or NMPCs). This chapter focuses specifically on the grants allocated to MPCs, particularly those tied to water supply and sanitation improvements.

Million-Plus Cities Challenge Fund (MFC):

The XVFC recommended a total grant of ₹ 1,21,055 crore for all ULBs in India for the period of 2021-26. Within this, a dedicated amount of 38,196 crore was allocated specifically for MPCs under the Million-Plus Cities Challenge Fund (MCF).

Nodal Ministry and Distribution:

The Ministry of Housing and Urban Affairs (MoHUA), Government of India

- Performance-Linked Grants focusing on -
- Quality urban drinking water supply

- Sanitation (including sewerage and septage management)
- Solid Waste Management (SWM)

Water Conservation Measures:

- Water recycling and reuse
- Rejuvenation of water bodies
- Mandatory Projects and Timelines:
- Rejuvenation of Water Bodies: Selection of at least 3 polluted water bodies (area > 1 acre), preparation of scientific rejuvenation plans and DPRs, and achieving staged work completion (10% by June '22, 40% by June 23, 80% by June '24, completion by June '25).
- Recycling and Reuse of Wastewater: Selection of projects with minimum capacities based on population (20 MLD for 10-20 Lakh, 50 MLD for 20-50 Lakh, 150 MLD for 50 Lakh+), land clearance, DPR preparation, and achieving staged work completion similar to water body rejuvenation.
- Water Supply: Identification of projects for uncovered areas, land clearance, DPR preparation, and achieving staged work completion similar to the above.
- Total Proposed Allocation (FY 20-21 to 25-26): Rs. 2141.58 Cr.
- Funds Received (FY 20-21 to 22-23): Rs. 980.44 Cr.

Utilization Status

- Actual Expenditure: Rs. 665.76 Cr.
- Total Utilization (Actual): Rs. 665.76 Cr, representing 67.90% of the funds received up to FY 2022-23.
- Utilization Certificates (UCs) have been submitted for FY 2020-21, 2021-22, and 2022-23.

Nodal Entity for Urban Agglomerations: In cases where an Urban Agglomeration includes multiple ULBs (including the MPC), the State Government designates one ULB as the nodal entity. This perior receives the grant, coordinates efforts across the UA, and is responsible for achieving the performance targets for the entire agglomeration.

Projects been taken under 15th Finance Commission Water Funds:

Details of major projects:

1. Rejuvenation of Water Bodies - Rejuvenation of Sion Lake, Sheetal Lake and Dingeshwar Lake.
   Allocated funds - 105 Cr.; Status In progress
2. Designing. Providing. Constructing and Commissioning modernized and fully automated package/modular Sewage Treatment Plants of capacities 1.5 MLD and 5 MLD along Dahisar River on Design Build Operate (DBO) basis.
   Allocated funds - 300.84 Cr.; Status - In progress

3. Design, Build and Operate of 180 MLD Versova Waste Water Treatment Facility/Plant.
   Allocated funds-600 Cr.; Status - In progress
4. Establishment of 600 TPD Waste to Energy Project at Deonar along with Solid Waste Processing Unit to generate 04 MW of Power.
   Allocated funds - 600 Cr.; Status - In progress

Details and Status of other projects funded under 15th Finance Commission

1. Structural Repair and Allied Works of Powai High Level and Powai and Ghatkopar Low Level Reservoir.
   Allocated funds-49.63 Cr.; Status - In progress
2. Replacement of Old Pali Inlet of PHR of size 750-600 from Junction of S.V. Road and Hill Road to Junction of Khar Pali road and Ambedkar Road in H/West ward.
   Allocated funds 19.91 Cr.; Status In progress
3. Realignment/Replacement of 900mm and 450mm diameter water mains and allied works in R/South and R/North Wards.
   Allocated funds-23.28 Cr.; Status - In progress
4. Installation of Rain Water Harvesting System at Various Locations such as BMC Garden, BMC Hospital, BMC Schools, BMC Ward Offices etc.
   Allocated funds-5 Cr.; Status Completed.
5. Improvement of Sewerage System in Mumbai City.
   Allocated funds-386.79 Cr.; Status-In progress.
6. Providing new sewer lines.
   Allocated funds-3.45 Cr.; Status - In progress
7. Planning, Designing and Construction of Suvidha Kendra "Smart Sanitation Facilitation Centre" at 25 Locations in Mumbai City.
   Allocated funds 14 Cr.; Status - Yet to start
8. Procuremem of 09 E-Sweeper Machines with Operation and Maintenance
   Allocated funds 37.38 Cr.; Status Machines purchased. O and M in progress.

Air Pollution

The Brihanmumbai Municipal Corporation announced the Mumbai Air Pollution Mitigation Plan in the budget for the year 2023-24 and the said plan has been approved on 13.04.2023 in this, the Brihanmumbai Municipal Corporation has set a target of net zero emissions by the year 2050. As part of this plan, the Brihanmumbai Municipal Corporation issued 27-point guidelines on 25.10.2023 to control air pollution in the municipal area. These guidelines effectively control air pollution caused by various construction projects underway in the Greater Mumbai area.

Noise Pollution Control

In the matter of public interest litigation No. 173/2010 filed by Mahesh Bedekar V/s State of Maharashtra, as per the direction given by Hon'ble High Court Bombay for the compliance of same, the NEERI has carried out the Noise Monitoring and Noise Mapping of 55 locations in Mumbai City, Noise Mapping Report prepared for Mumbai City, the NEERI has given recommendations and suggestions to control Noise Pollution in Mumbai City and identified the role of various Government / Semi Government authorities to control Noise Pollution in Mumbai City.

As per directions of Member of Secretary of M.P.C.B. the environment department of BMC has written letters to various concern outside department / authorities and various concern internal department of BMC to submit monthly report to Environment department about action taken for implement the recommendations and suggestions made by NEERI. Thus, Environment department is coordinating the activity in the subject matter. As per the directions in the NEERI report the BMC has

formulated the City Noise Pollution Control Committee, which will formulate the guidelines to monitor and control the Noise Pollution in the Mumbai City.

Silence Zones

For BMC, in the first phase Govt. Of Maharashtra has declared the list of 110 silence zones vide state Govt. of Maharashtra extraordinary Gazette part 4 A No. 191 dt. 30th November 2017. The second phase list of 110 silence zones have been prepared and forwarded to all Assistant Commissioners of wards for verification. After verification the list will be forwarded to UD-II department of Maharashtra State to declare and notify the silence zones by State Government.

Air Pollution Prevention Tax (A.P.P.)

Brihammumbai Municipal Corporation has introduced Air Pollution Prevention (A.P.P.) charges since 1st April 1978 on the basis of motive power used by industries in Mumbai, The Air Pollution Prevention charges of each Ward are collected by A.E.(Building and Factory) department of Ward Offices and amount from all Wards is credited to this department.

The rates of APP fee is not revised since 2009. Administrative Standing Committee resolution number 1024 dated 04.11.2022, an increase 189% in air pollution abatement charges has been sanctioned and an increase of 5% has been approved in every financial year after 2022-23. Therefore the Municipal Corporation is expected to have an increase revenue of approximately 2 crores annually.

Air Quality Monitoring and Research Laboratory

As per 74th ammendment of the constitution of India in 1992 (12th schedule) the Maharashtra State Government issued an ordinance amend Municipal Corporation Act-1888 making "environment protection, promotion of ecology and urban forestry" as an obligatory duty vide section 61 (ab) in the year 1994.

In view of fulfillment of the above Act, Air Quality Monitoring and Research Laboratory working under Environment and Climate Change department of Brihanmumbai Mahanagarpalika to measure the levels of air pollutants in Brihanmumbai Municipal Corporation jurisdiction has established a fixed air monitoring station in different location. Also measured air pollution level with the help of automatic van (Mobile Van) in dumping ground and traffic junctions. Whenever the complaints are received from citizens, special monitoring is carried out and the reports are submitted. Also under the section '63 B' of Mumbai Municipal Corporation (MMC) Act. 1888 Environmental Status Report is prepared and submitted every year before 31st July to the Corporation. This laboratory established in the year 1976 this the only one environmental laboratory to monitored ambient air pollutant.

Mobile Van Monitoring Unit:

In the BMC area with the help of Mobile Van, monitoring is carried out at traffic junctions namely Wadala and Andheri. Similarly at the dumping grounds namely Deonar, and Kanjur. The pollutants analysed are SO2, NO2, CO, O3, PM10, PM2.5, Hydrocarbans etc. Whenever the complains are received from citizens, special monitoring is carried out with the help of Mobile Van and the reports are submitted to the concern authority. Result of pollutants are compared with standards set by Central Pollution Control Board (CPCB) and Monthly/Annual report is forwarded to Dy.Ch.Eng (Civil)Env/ Ch.Eng(SWM) and HOD, Environment Pollution and Research Centre(EPRC) department (KEM).

In the year 2022-2023, the Air Quality Monitoring and Research Laboratory, Continuous Ambient Air Quality Monitoring Stations have been operational at 5 places in the Brihanmumbai Municipal Corporation jurisdiction, through which Air Quality Levels, Air Quality Index etc. Information is becoming available to Mumbaikars. The Continuous Ambient Air Quality Monitoirng Stations are connected to the servers of Central Pollution Control Board and Maharashtra Pollution Control Board and daily Air Quality Index (AQI) information is displayed on the website of Brihanmumbai Municipal Corporation.

Table 19.1: BMC's Continuous Ambient Air Quality Monitoring Stations.

Sr. No.	Station	Address
1	Byculla	Veer Jijamata Udyan, Byculla (E)
2	Ghatkopar	New Pumping Station Ghatkopar, Eastern Express Highway, Ghatkopar(E)
3	Shivaji Nagar	Shivaji Nagar BMC Hindi School No.2, Govandi (East)
4	Kandivali	Charkop Maternity Home, Kandivali (W)
5	Sewri	Sewri-Koliwada BMC School Complex, Sewri (East)

The annual report of the said automated ambient air quality monitoring station has been included in Table No. 19.2.

Table 19.2 : Air quality levels at "CAAQMS (BMC)" sites (April 2024 to March 2025)

Sr. No.		2024-2025				
	Station	PM_{10}	$PM_{2.5}$	O_3	CO	No_2
1	Byculla	69	33	38	0.4	21
2	Ghatkopar	75	32	22	0.4	28
3	Shivaji Nagar	37	50	30	0.6	21
4	Kandivali	72	36	34	0.5	25
5	Sewri	75	36	28	0.6	19
	CPCB Std. Annual Avg	**60 (µg/m3)**	**40 (µg/m3)**	**100 (8Hrs) (µg/m3)**	**2.0 (8Hrs) (µg/m3)**	**40 (µg/m3)**

Annual Averages:

Comparison of annual levels with standards prescribed by Central Pollution Control Board observations is as follows; (Table No.19.2)

1. Annual average Levels of Suspended Particulates (PM10) are found to be in the range of 37-75 µg/m3 during 2024-2025. Maximum level of PM10 is observed at Ghatkopar and Sewri (75 µg/m3).

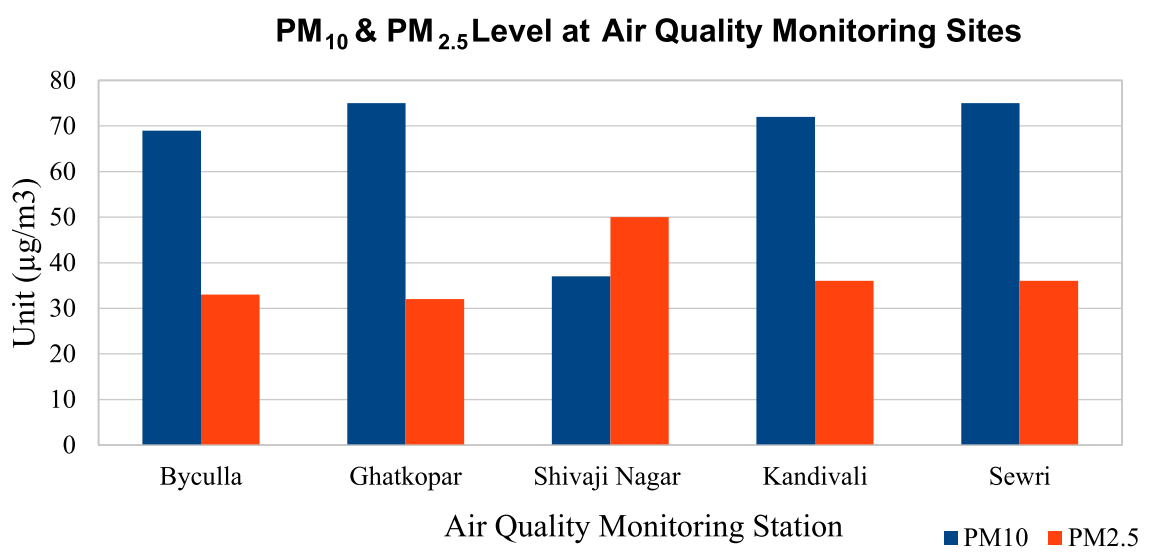
2. Annual average Levels of Suspended Particulates (PM2.5) are found to be in the range of 32-50 µg/m3 during 2024-2025. Maximum level of PM2.5 is observed is observed at Shivaji Nagar (50 µg/m3).

3. Annual average Levels of Ozone (O3) are found to be in the range of 22-38 µg/m3 during 2024-2025. Maximum level of O3 is observed at Byculla (38 µg/m3).

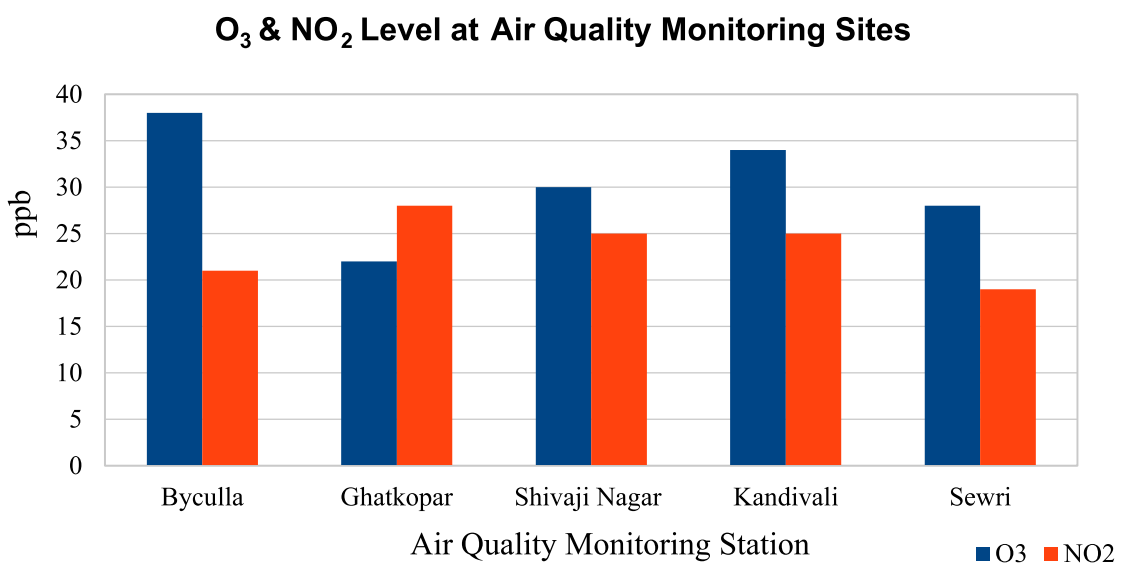
4. Annual average Levels of Carbon Monoxide (CO) are found to be in the range of 0.4-0.6 mg/m3 during 2024-2025. Maximum level of CO is observed at Shivaji Nagar and Sewri (0.6 mg/m3).

5. Annual average Levels of Nitrogen di-oxide (NO2) are found to be in the range of 19-28 µg/m3 during 2024-2025. Maximum level of NO2 is observed at Ghatkopar (28 µg/m3).

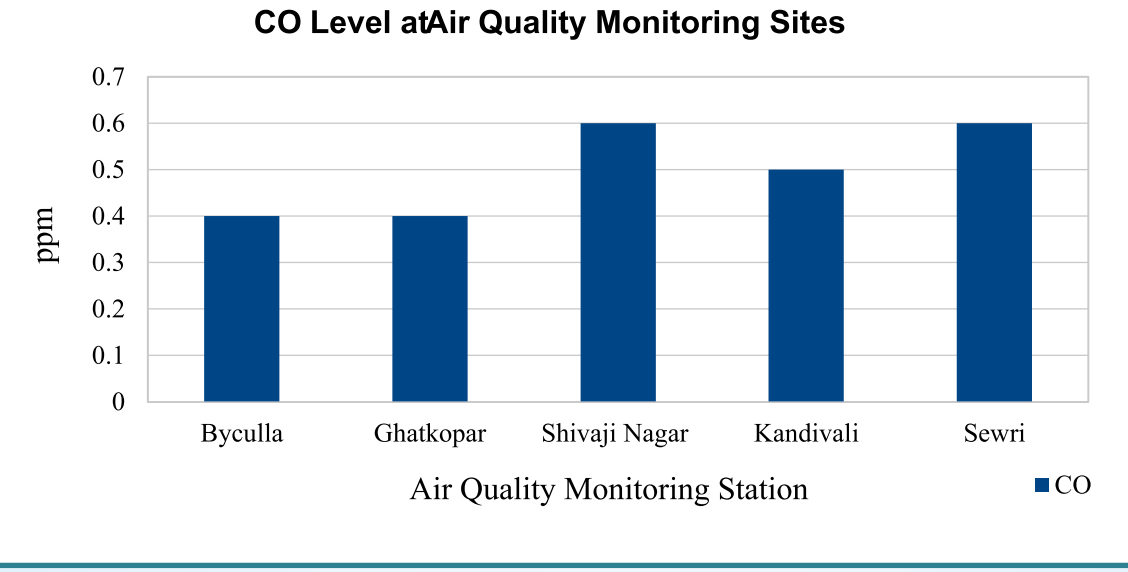
Graph 19.2 (A): PM10 & PM2.5 Level at Air Quality Monitoring Sites



Graph 19.2 (B): O3 & NO2 Level at Air Quality Monitoring Sites



Graph 19.2 (C): CO Level at Air Quality Monitoring Sites



The important project of SAFAR-Mumbai is a joint venture of BrihanMumbai Municipal Corporation (BMC) Indian Meteorology Department (IMD) Mumbai and; Indian Institute of Tropical Meteorology (IITM) Pune.Data received from 'SAFAR-Mumbai' is further analysed by Air Quality Monitoring and Research Laboratory for NO2, CO, O3, PM10, PM2.5 pollutants. Weather Forecast and Air Quality Index is now available to citizens on mobile app namely 'SAFAR-Air'

Air Quality Monitoring Stations (AQMS), Automatic Weather System (AWS) and LED Boards are installed at various locations in Mumbai to received information about current air quality and 1 to 3 days forecast.

Table no. 19.3: Air quality levels at "SAFAR-Mumbai" sites (2022 to 2025)

Sr. No.		2022-2023					2023-2024					2024-2025				
		PM_{10}	$PM_{2.5}$	O_3	CO	No_2	PM_{10}	$PM_{2.5}$	O_3	CO	No_2	PM_{10}	$PM_{2.5}$	O_3	CO	No_2
1	Chembur	130	74	22	2.0	18	128	64	13	2.1	20	125	52	15	0.9	24
2	Bhandup	91	50	25	1.0	6	77	39	22	1.6	8	70	27	21	0.5	11
3	BKC	121	68	12	1.3	48	102	54	16	1.0	17	#	#	#	#	#
4	Colaba	92	51	28	1.0	9	83	45	27	1.5	14	96	40	39	0.6	17
5	Andheri	100	59	16	1.0	33	82	44	18	1.6	20	89	38	20	0.6	26
6	Malad	106	74	22	1.1	7	88	52	22	1.4	14	104	45	20	0.6	15
7	Mazgaon	94	59	18	1.4	45	84	40	18	1.5	22	96	41	22	0.8	24
8	Worli	68	41	24	1.0	22	83	39	23	1.3	12	88	38	31	0.8	13
9	Borivali	92	50	14	0.5	8	76	40	15	1.2	10	86	44	20	0.8	16
	CPCB Std. Annual Avg	**60 (µg /m3)**	**40 (µg/ m3)**	**51 (8Hrs) (ppb)**	**1.75 (8Hrs) (ppm)**	**21 (ppb)**	**60 (µg/ m3)**	**40 (µg/ m3)**	**51 (8Hrs) (ppb)**	**1.75 (8Hrs) (ppm)**	**21 (ppb)**	**60 (µg /m3)**	**40 (µg /m3)**	**51 (8Hrs) (ppb)**	**1.75 (8Hrs) (ppm)**	**21 (ppb)**

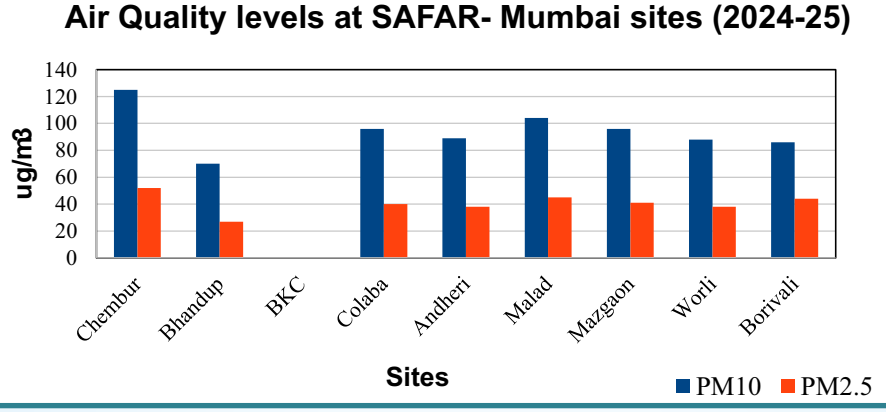
Source: 'SAFAR-Mumbai' **# : Data not available**

Annual Averages:

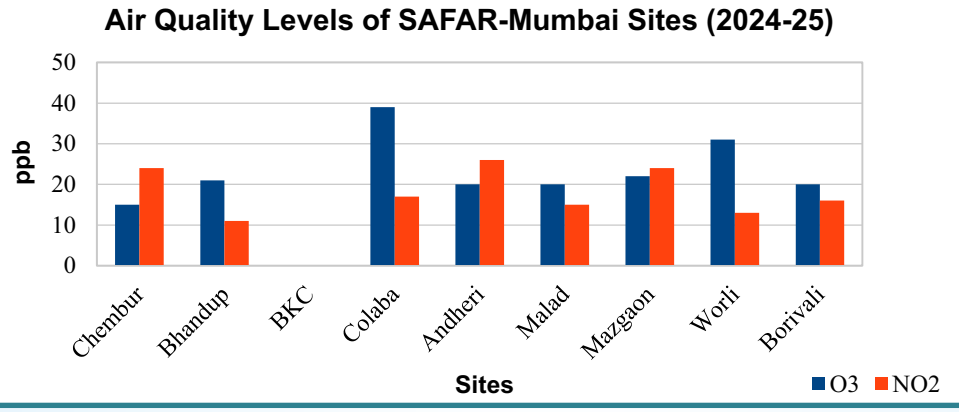
Comparison of annual levels with standards prescribed by Central Pollution Control Board observations is as follows; (Table No.19.3)

1. Levels of Suspended Particulates (PM10) are found to be in the range of 70-125 µg/m3 during 2024-2025. Maximum level of PM10 is observed at Chembur (125 µg/m3) .
2. Levels of Suspended Particulates (PM2.5) are found to be in the range of 27-52 µg/m3 during 2024-2025 Maximum level of PM2.5 is observed at Chembur (52 µg/m3).
3. Levels of Ozone (O3) are found to be in the range of 15-39 ppb during 2024-2025. Maximum level of O3 is observed at Colaba (39 ppb).
4. Levels of Carbon Monoxide (CO) are found to be in the range of 0.5-0.9 ppm for the year 2024-2025 Maximum level of CO is observed at Chembur (0.9ppm).
5. Levels of Nitrogen di-oxide (NO2)are found to be in the range of 11-26 ppb during 2024-2025 Maximum level of NO2 is observed at Andheri (26 ppb).

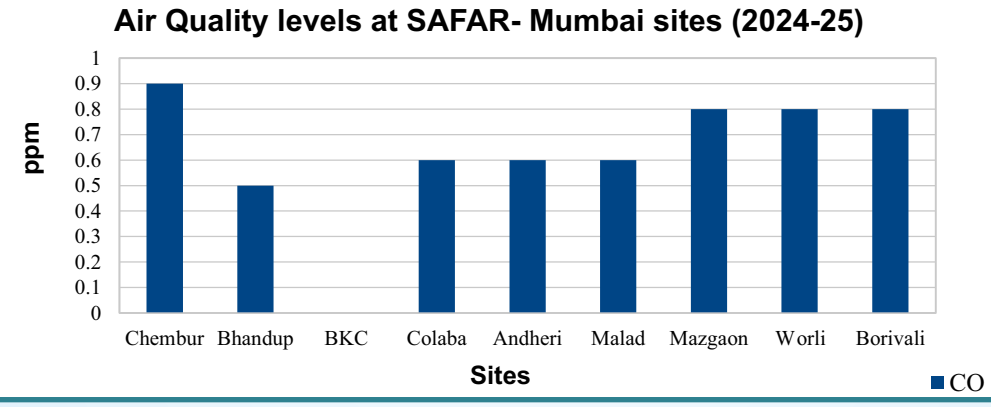
Graph 19.3 (A): Air quality levels at SAFAR-Mumbai sites (2024-25)



Graph 19.3 (B): Air quality levels at SAFAR-Mumbai sites (2024-25)



Graph 19.3 (C): Air quality levels at SAFAR-Mumbai sites (2024-25)



Air Quality Index (AQI):

Honourable Minister for Environment, Forests and Climate change, launched the national Air Quality Index (AQI) in New Delhi, on 17th September 2014 under the 'Swachh Bharat Abhiyan'. It is outlined as 'One number-One colour-One description' for the common man to judge the air quality in his vicinity.

The Air Quality Index is an effective measure of air quality as it provides a simple and understandable picture of the air quality. The AQI is calculated by comparing the air pollutants with the NAAQS standards set by the Central Pollution Control Board, as per the measurements.

AQI Descriptor

AQI	Colour		Air Quality
0-50	Green		Air Quality
51-100	Light green		Good
101-200	Yellow		Satisfactory
201-300	Orange		Moderately polluted
301-400	Red		Poor
401-500	Brown		Very poor

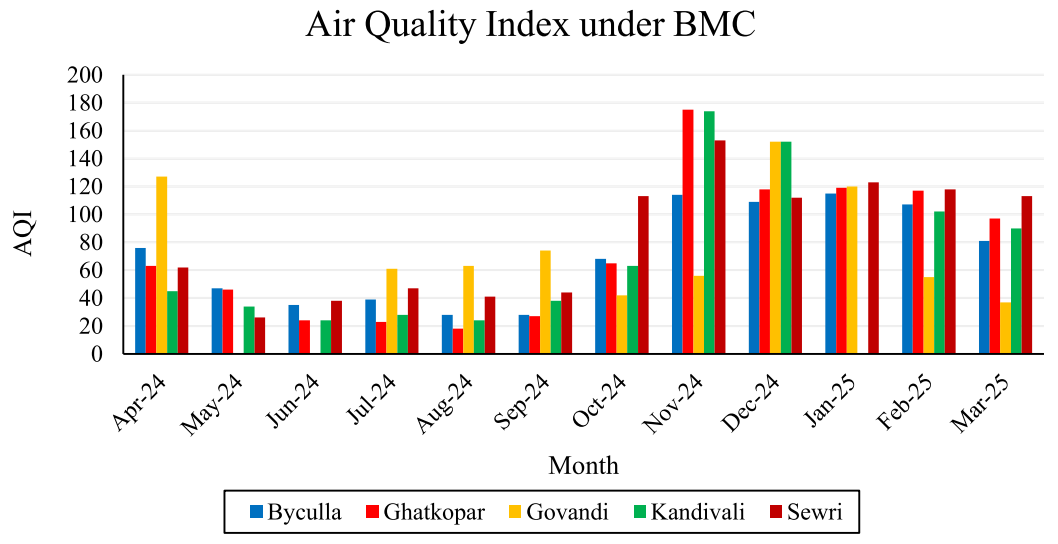
Monthly average Air Quality Index of Brihanmumbai Municipal Corporation's Continuous Ambient Air Quality Monitoring Station are shown in Table no. 19.4

Table no.19.4: Air Quality Index under BMC during April 2024 to March 2025

Sr. No.	Month	Byculla	Ghatkopar	Govandi	Kandivali	Sewri
1	April-2024	76	63	127	45	62
2	May-2024	47	46	#	34	26
3	June-2024	35	24	#	24	38
4	July-2024	39	23	61	28	47
5	August-2024	28	18	63	24	41
6	September-2024	28	27	74	38	44
7	October-2024	68	65	42	63	113
8	November-2024	114	175	56	174	153
9	December-2024	109	118	152	152	112
10	January-2025	115	119	120	#	123
11	February-2025	107	117	55	102	118
12	March-2025	81	97	37	90	113

 # : Data not available

Graph 19.4: Air Quality Index under BMC



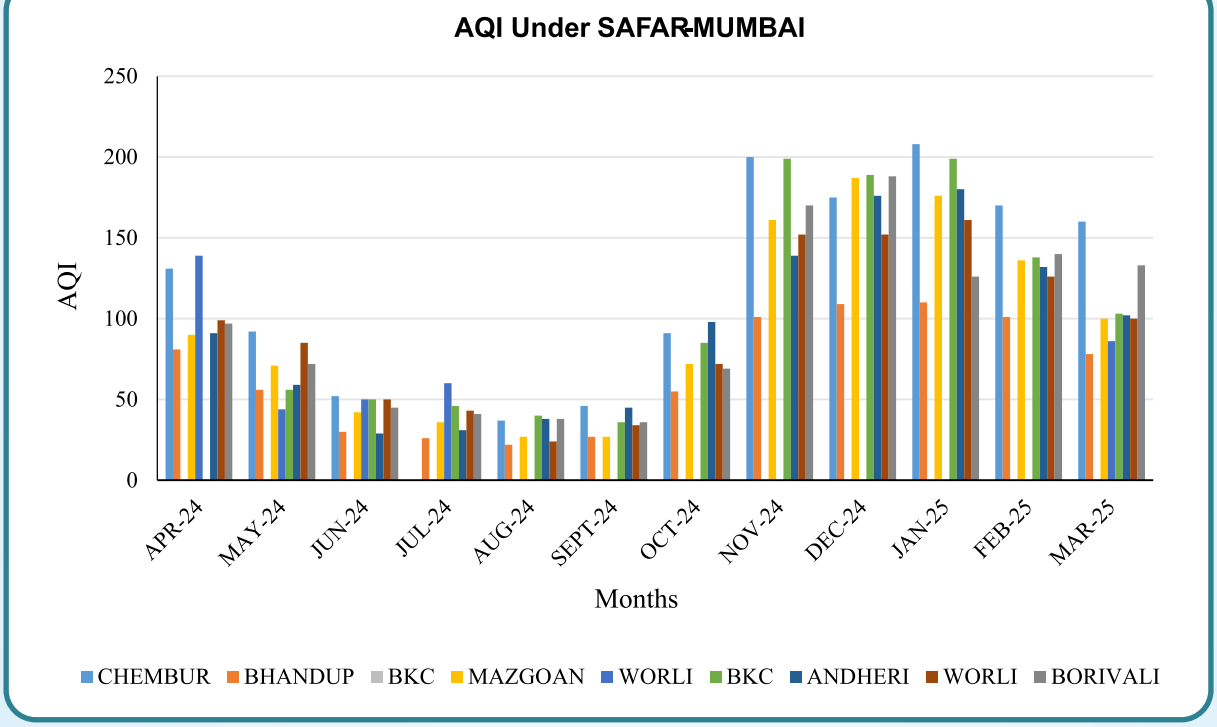
Monthly average Air Quality Index of SAFAR-Mumbai's Continuous Ambient Air Quality Monitoring Station are shown in Table no. 19.5

Table no.19.5 :Air Quality Index under SAFAR-Mumbai during April 2024 to March 2025

Month	Chembur	Bhandup	BKC	Colaba	Andheri	Malad	Mazgaon	Worli	Borivali
April-2024	131	81	#	90	139	#	91	99	97
May-2024	92	56	#	71	44	56	59	85	72
June-2024	52	30	#	42	50	50	29	50	45
July-2024	40	26	#	36	60	46	31	43	41
August-2024	37	22	#	27	#	40	38	24	38
September-2024	46	27	#	27	#	36	45	34	36
October-2024	91	55	#	72	#	85	98	72	69
November-2024	200	101	#	161	#	199	139	152	170
December-2024	175	109	#	187	#	189	176	152	188
January-2025	208	110	#	176	#	199	180	161	126
February-2025	170	101	#	136	#	138	132	126	140
March-2025	160	78	#	100	86	103	102	100	133

 # : Data Not Available

Graph 19.5: AQI Under SAFAR-MUMBAI



Control of Air Pollution-Legal Aspects :

Municipal Commissioner has been vested with power as per MMC Act 1888, under sections 381, 390, 471, 472 to discharge certain obligatory and discretionary duties. MPCB is empowered to enforce the provisions of different Acts like Water Act, Environment Act, etc. Both agencies co-ordinates with each other to control pollution using these powers.

Table No.19.6: National Ambient Air Quality Standards central pollution control board, New Delhi (18th November, 2009)

Parameter	Exposure Period	Industrial, Residential, Rural and Other Area	Sensitive Area
Sulphur Dioxide, SO_2 µg/m3	Annual avg. *	50 µg/m3	20 µg/m3
	24 Hrs. avg.**	80 µg/m3	80 µg/m3
Nitrogen Dioxide, SO_2 µg/m3	Annual avg. *	40 µg/m3	30 µg/m3
	24 Hrs. avg.**	80 µg/m3	80 µg/m3
Particulate Matter (Size less than 10µm) Pm_{10} µg/m3	Annual avg. *	60 µg/m3	60 µg/m3
	24 Hrs. avg.**	100 µg/m3	100 µg/m3
Particulate Matter (Size less than 2.5 μ_m) $PM_{2.5}$ µg/m3	Annual avg. *	40 µg/m3	40 µg/m3
	24 Hrs. avg.**	60 µg/m3	60 µg/m3
Ozone, O3,µg/m3	8 Hrs.**	100 µg/m3	100 µg/m3
	1 Hr.**	180 µg/m3	180 µg/m3
Lead, Pb, µg/m3	Annual avg. *	0.5 µg/m3	0.5 µg/m3
	24 Hrs. avg.**	1 µg/m3	1 µg/m3

Parameter	Exposure Period	Industrial, Residential, Rural and Other Area	Sensitive Area
Carbon Monoxide, CO, µg/m3	8 Hrs.**	2.0 mg/m3	2.0 mg/m3
	1 Hr.**	4.0 mg/m3	4.0 mg/m3
Ammonia, Nh3, µg/m3	Annual avg. *	100 µg/m3	100 µg/m3
	24 Hrs. avg.**	400 µg/m3	400 µg/m3
Benzene, C6H6, µg/m3	Annual avg. *	5.0 µg/m3	5.0 µg/m3
Benzo alpha Pyrene, Particulate Phase only BaP, ng/m3	Annual avg. *	1.0 ng/m3	1.0 ng/m3
Arsenic, As, ng/m3	Annual avg. *	6.0 ng/m3	6.0 ng/m3
Nickel, Ni, ng/m3	Annual avg. *	20 ng/m3	20 ng/m3

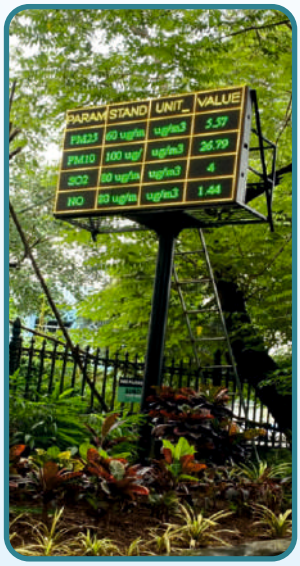
Source: Central Pollution Control Board, New Delhi

*** Annual arithmatic mean minimum 104 measurements in a year at a particular site taken twice a week 24 hrly at uniform interval.**

**** 24 hrly/ 8 hrly values should be met 98% of the time in a year, however, 2% of the time, it may exceed but not on two consecutive days.**

Note :

1. National Ambient Air Quality Standard: The levels of air quality necessary with an adequate margin of safety, to protect the public health, vegetation and property.
2. Whenever and wherever two consecutive values exceed the limit specified above for the respective category, it would be considered adequate reason to institute regular/ continuous monitoring and further investigations.
3. The State Government/ State Board shall notify the sensitive and other areas in the respective states within a period of six months from the date of Notification of National Ambient Air Quality Standard.



20 INDUSTRIES

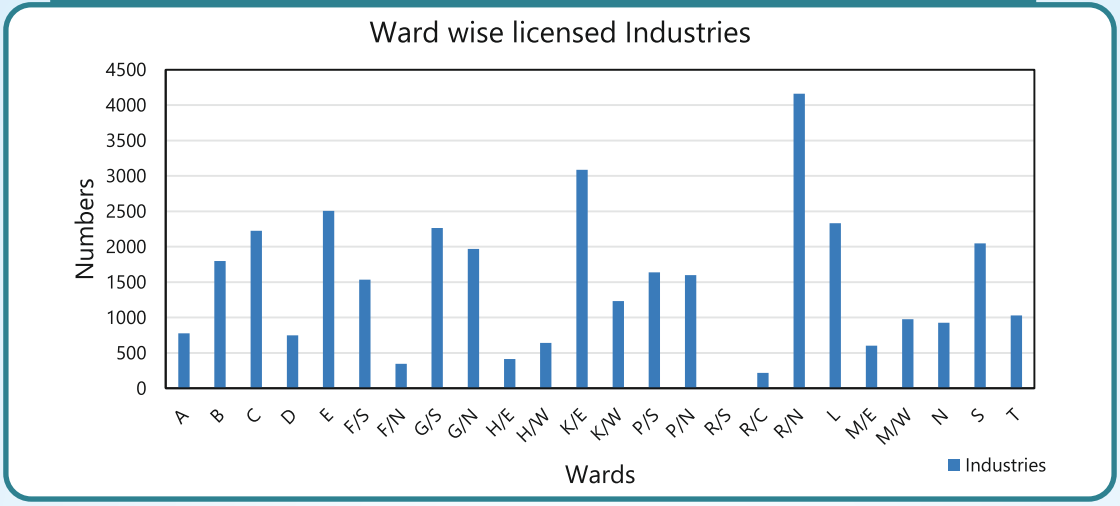
Environmental pollution is a by-product of industrialization. However, with the modern technologies, pollution potential of industries/factoroies are lowering. There are 35091 no. of industries are covered under section 390 of Mumbai Municipal Corporation Act 1888. These industries pay Air Pollution Prevention Fees on the basis of horsepower of the connected load. There are 14175 industries/factories are located in the city area, 12997 in Western Suburbs and 7919 in Eastern Suburbs. Maximum industries (4161) are in R/N ward. Ward-wise distribution of industries are shown in table 20.1

Table No.20.1: Wardwise Licensed Industries

Sr. No.	Ward	upto 31.03.2025
1	A	777
2	B	1800
3	C	2224
4	D	750*
5	E	2506
6	F/S	1535
7	F/N	348
8	G/S	2265
9	G/N	1970
10	H/E	413*
11	H/W	642*
12	K/E	3086
13	K/W	1233
14	P/S	1640*
15	P/N	1600
16	R/S	5*
17	R/C	217
18	R/N	4161*
19	L	2333
20	M/E	604*
21	M/W	975
22	N	927*
23	S	2049
24	T	1031*
	Total	**35091**

Source : Environment Department of Brihanmumbai Municipal Corporation
Note - '*' Information from previous Report (2023-24).

Graph No. 20.1: Ward wise licensed Industries



Ecofriendly Contribution of Industries

In addition to the efforts of Municipal Corporation of Greater Mumbai to reduced environmental pollution, other major industries in Mumbai also contribute in development of green cover in Mumbai and reduction in environmental pollution.

Rashtriya Chemicals and Fertilizers Limited

1. Rashtriya Chemicals and Fertilizers Limited (RCFL) is a leading fertilizers and chemicals manufacturing company with about 75% of its equity held by the Government of India. Company has been accorded the coveted "Navratna" status in August 2023. It has two operating units, one at Trombay in Mumbai and the other at Thal, Raigad district, about 100 KM from Mumbai. RCF manufactures Urea. Complex Fertilizers, Bio-fertilizers, Micro-nutrients. 100 per cent water soluble fertilizers, soil conditioners and a wide range of Industrial Chemicals

2. The "Ujjwala (Urea) and "Suphala" (Complex fertilizer) brands of fertilizers manufactured by RCF carry high brand equity and are recognized brands all over the country. These products are taken to the farthest corner of the country by extensive RCF dealers network spread throughout the country. Besides fertilizer products, RCF also produces a large number of industrial chemicals that are important for the manufacture of dyes, solvents, leather. pharmaceuticals and a host of other industrial products

3. Both the manufacturing units of RCF are accredited with ISO 9001 (Quality Management System), ISO 14001 (Environmental Management System), ISO 45001 (Occupational Health and Safety), ISO 50001: 2011 (Energy Management System) and ISO 27001 (Information Security Management).

4. Sustainability lies at the heart of RCF s core philosophy, and it has continuously endeavoured to incorporate sustainability in every aspect of its functioning RCF presently is self-reliant in meeting its requirement of precious resources such as water and electricity

5. In its bid towards India's vision of achieving ecologically sustainable growth. RCF has already forayed into solar power generation including ground mounted and rooftop facilities. RCF has an aggregate capacity of 4.01 MWp of solar power generation resulting into generation of more than 5000 MWh per annum of green power. The green power generated by solar plants replaces the conventional power

generated through burning of fossil fuels thereby leading to reduction in overall Greenhouse gas emissions

6. Over the past few decades, significant efforts have been made by it to improve environmental conditions, reduce emissions, reduce its overall carbon footprint and make a positive impact on adjoining communities in its area of operations. Over the years, plants have been systematically upgraded with state-of-the art technologies along with inbuilt emission indicators and pollution control and monitoring systems. These upgrades have taken place either incrementally by way of retro fitments or in the progressive replacement of old machines RCF stands committed to working collaboratively with all relevant stakeholders including communities residing in the vicinity, ecosystems present in the vicinity of its operatioris and regulatory bodies.

7. As per the Maharashtra Pollution Control Board (MPCB) guidelines, at least 33% of available open land under green coverage or plantation is necessary RCF has at its Trombay Unit set aside 34:43 hectares under green coverage area inside the factory and 23.5 hectares green coverage area inside the RCF Township. These set asides correspond to a total green coverage area of 62% of available open land. At the said Unit, RCF has undertaken massive tree plantation activities both inside and outside of its factory premises and the same is a continuing activity, A total of 10,249 trees have already been planted between April 2024 and September 2024 with a further more trees to be planted in the factory area, Administrative building area and Township area on an ongoing basis.

8. RCF has installed four fixed Ambient Air Quality Monitoring Stations around its factory within the Trombay Unit. These Stations gather data on a continuous basis, which is harvested/stored online and transmitted to the MPCB's server in real time. That apart, continuous online data of SO2, Nox and NH3 is transmitted to the MPCB's and CPCB's servers since the year 2015

9. RCF has also installed an Integrated Effluent Treatment Plant at its Trombay Unit that ensure that the effluents discharged from its factory meets the statutory requirements laid down by the MPCB. Real time transmission of data pertaining to pH flow and Ammonical Nitrogen of ETP to the MPCB and CPCB servers since the year 2015 is also taking place.

Adani Powers:

1. Power Supply and Consumption

Adani Electricity is recognized by the Ministry of Power (MoP) as India's No. 1 Power Utility, achieving excellence in both Financial and Operational Performance and Customer Service. For the third consecutive year, AEML secured the top position in the 13 th Annual Integrated Rating and Ranking Exercise for Power Distribution Utilities, conducted by the Power Finance Corporation.

At Adani Electricity, we are dedicated to empowering individuals to live a sustainable lifestyle and make a positive impact every day. We aim to contribute to building a cleaner and greener environment with Green Tariffs while creating sustainable value and empowering India through #GrowthWithGoodness, in line with Adani Group's philosophy.

We also believe in providing customer-centric services through our innovative and advanced solutions. Our technology-driven value-added services, such as Smart Meters and Adani Electricity

mobile app, have made it easier for customers to manage their accounts and access information about their energy usage digitally.

Established as a subsidiary of Adani Transmission Ltd, we are Mumbai's leading power distribution utility company. With a distribution network spanning over 400 sq. km of Mumbai city (nearly 85% in terms of area), from Bandra to Bhayander on the western side and Sion to Mankhurd on the eastern side of Mumbai, we provide reliable power to over three million households. Adani Electricity meets close to 2,000 MW of power demand in Mumbai's largest and the most efficient power distribution network.

The company caters to around 3 million customers, with the residential segment forming almost 50% power sales (in FY25) followed by commercial (~33%) and industrial (~10%) segments.

As an organization, Adani Electricity believes in the motto - The Power of Service. It is born of the will to make a difference and change things for the better, so that everyone can power their dreams and live a stress-free life.

AEML's Initiatives towards pollution control and reduction of carbon footprint:

- Fulfilling of RPO Obligations: AEML has fulfilled and significantly exceeded Standalone RPO target of 29.91% (MERC RPO Target) for FY 2024-25.
- 4001.78 MUs of renewable energy procured (~ 35.20% of total energy)
- Reduction in GHG Emissions Intensity from 2254 (baseline FY18-19) to 683 (i.e. reduction by 69.71%).

2. Renewable energy

- AEML plans to increase its renewable power procurement mix percentage to 60% by the end of FY 2027. Increased procurement of renewable energy from 3% (baseline FY19) to 35.20% in 5 years.
- AEML has entered into Power purchase Agreement (PPA) of 700 MW of hybrid power (solar + wind) with minimum guaranteed capacity utilization factor of 50%, from FY 2022 onwards, for 25 years.
- Green Energy Tariff - Launched Green Energy Tariff for supporting carbon neutrality goals of consumers. AEML offers consumers to opt for Green power (renewable power) voluntarily and provide with green energy certificates. Green power opted by 5832 consumers.
- AEML-D encourages and provide technical support to its consumers to install roof top solar plants through empanelled Roof top Solar PV Plant vendors.

3. EV charging Infrastructure under Demand Side Management (DSM) Scheme

As part of its commitment to clean mobility and demand-side management, AEML expanded its Electric Vehicle (EV) charging infrastructure during FY2024-25. Under the DSM (Demand Side Management) scheme, the company successfully installed 417 EV chargers across its network area and a total of 577 Nos. DSM charges installed in our network area till FY 24-25, catering to both 2-wheeler and 4-wheeler electric vehicles. These chargers were primarily deployed in common areas of residential societies, encouraging EV adoption by ensuring convenient access to charging points. The installed

infrastructure collectively accounted for an electricity consumption of approximately 0.33 MUs in the reporting year. This initiative not only supports the transition to electric mobility but also contributes to peak load management and energy efficiency within the distribution system.

4. Green Technology and Process Automation

- AEML has been continuously reinforcing and strengthening its commitment to the cause of the Environment. Aligning with this commitment, AEML is already certified for Environment Management System (ISO-14001) and Energy Management System (ISO-50001). AEML has established a system to manage plastic / waste generated by establishing processes for Identification, classification, segregation, storage, reuse / recycle and disposal. AEML is now certified with Zero Waste to Landfill (ZWTL) and Single Use Plastic (SUP).

- AEML has carried out various automation processes to reduce use of paper and encourages all its consumers to opt for paperless bills to reduce environmental impact. Continued promotions for Initiative towards environment saving (721023 Consumers)

- AEML has replaced oil type switch gears with dry type maintenance free switchgears, and it also uses environmentally friendly Bio-degradable Ester Oil filled transformers to reduce environmental pollution.

- AEML has deployed Cold Shrink Joints in LT application in place of hazardous resin cast joints to reduce carbon footprint and hazardous waste.

- AEML has opted to use non-carcinogenic biodegradable silica gel in transformers across AEML distribution area.

Mumbai Port Trust

Mumbai Port has a long history of significant contribution to the economic development of Mumbai city and the nation. This Port Trust was established in 1873 and has been one of the premier the city of Mumbai as financial capital of the country. Ma major contributintinuous commitment to the issues related to the environmental concern and has strived to contribute its share. Few such efforts are listed here below

1. Mumbai Port has its own dedicated Pollution Control Cell which monitors i) Pollution in sea water ii) Quality of Harbour water, Ambient Air Quality and Noise Pollution. Monitoring of water and air quality is carried out every month through third party MoEF approved laboratories as per EP Rules 1986 iii) Providing reception facilities for safe disposal of Garbage and Hazardous Waste generated from ships. iv) Collection of floating debris from sea water.

2. Parameters analysed for harbour water samples are (i)PH (ii) Colour (iii) Odour (iv) Oiland Grease (v)Turbidity (vi) Total Suspended Solids (vii) DO (viii) BOD (ix) Nitrates (x)Nitrites (xi)Ammonia (xii) Phosphates (xiii) Petroleum Hydrocarbon (xiv) Polyaromatic Hydrocarbon (xv)Fecal Coliform (xvi) Bioassay Test (xvii) Phenol and (i)Hg (ii)Cd (iii) Pb-

3. Ambient Air Quality is tested for (i)SO2 (ii)NOx (iii) RSPM-PM 10 (iv)RSPM-PM 2.5 (v) CO (vi) Benzene.

4. Port proudly feels to state that it has developed and maintained, one of the best Botanical Gardens named 'Sagar Upvan' in the Port area near Colaba, which has received 'Best Garden Award' in its category for nine years successively. Apart from this several green patches are developed by the Port, thousands of trees have been planted and maintained by the Port.

5. Approximate quantity of E- waste generated in the MbPT estate is approximately 6.04 MT for 2024-25 year. This waste is handed over to authorised and approved MPCB vendors.

6. Approximate quantity of solid Waste generated in the MbPT estate is approximately 183.851 MT for 2024-25 year. This wast is handed over to authorised and approved MPCB vendors.

7. Tansported to Brihanmumbai Municipal Corporation's Landfill Site for land filling and waste processing at their end.

Tata Powers:

1. Fuel Quality and Emission:

Use of low sulphure (0.1 to 0.2%) low ash (5%) imported coal for power generation.

2. Air Pollution Control:

ESP for Unit # 5 and Unit # 8.

FGD for Unit # 5 and Unit # 8.

Stack Height of 275 m for wider dispersion of pollutants.

3. Fugitive Dust Control:

Screw Unloader (State of Art) for unloading coal at coal berth.

Pipe conveyor for carrying coal from coal berth to boiler.

Green belt around coal yard and coal berth.

Water sprinkling system around coal yard for dust supperssion.

4. Pollution Control and Treatment:

ETP for treatment of effluent generated from DM plant.

STP (2x125 CMD) at station A and station B for treatment of domestic effluent.

Coal Pile run off system at Coal Yard and Coal Berth.

Cooling water channel and aerators to reduce the temp of discharge water.

Online Effluent Monitoring (Temp)

STP water reused for gardening.

5. Solid Waste and Hazardous Waste:

Minimal Ash generation due to use of imported low Ash (5%) coal; 100% fly ash and bottom ash utilization.

Used Oil is disposed to MPCB approved agency in accordance with HW Rules, 2016. Submission of HW Manifest.

E-waste is disposed to MPCB approved recycler/ dismantler. Submission of form-2 and form-3

Used batteries are disposed to MPCB approved agency.

BMW is disposed to MPCB approved agency.

Horticulture waste to BMC approve agency for manure preparation.

Biodegradable Plastic used for monsoon protection.

Biogas plant installed at kitchens to utilize daily generated kitchen wastes.

Bharat Petroleum Corporation Ltd. Mumbai Refinery, Chembur

BPCL MR has taken various initiatives in year 2024 – 2025 for environment protection. The status of these initiatives is as mentioned below:

- Bottom Loding Facility for dispatching petroleum products viz. MOT/ Hexan /SBP has been commissioned at TDU White Oil Gantry to minise emissions.
- New BLDC [Brushless Direct Current] fan installation (3000 nos) completed at BPCL Staff Colony, Chembur.
- Zeor Waste to Landfill (ZWL) 2nd Surveillance audit has been successfully completed at BPCL MR. Waste diversion rate of 99.5% has been achieved to obtian ZWL certificate.
- Apporx. 62000 KL of Rain water has been harvested from jun to Oct – 2024.
- Inauguration of ' Tree plantation certificate distribution' under "EK Ped Maa ke Naam" drive on each employee's birthday and plantation of 3000 nos of trees at Thane Central Jail authority, MR Team and NGO M/s. Waterfield Trust, Thane.
- Third butterfly garden' has been developed by Estate near LAB area MR for Biodiversity and ecosystem sustainability.
- Commissioning of ETP with latest treatment technology alter revamp has been completed.\
- Environment Awards conferred
- "India Green Manufacturing Challenge Awaed 2024 and Net Torch Bearer Preformer Four – star Award 2024" at the 10th Edition of India Green Manfacturing Challenge (IGMC) on 8th November in Mumbai.
- CII National Environment Award – 2024 during CII GreenCo Summit for 'Installation of air purification units on BEST buses' under innovative environmental project category.
- 'APEX Gold Leaf Award – 2023-2024' for Environment Excellence.
- Real time Ambient Air Monitoring at AMS, stacks monitoring for SOX, NOX, CO and SPM, ETP outlet parameters for BOD, COD, TSS and pH with real time data transmission to CPCB/MPCB servers.
- Planted 500 Tree saplings of native species in and around MMR.
- About 1362 MWH power of generated from Solar panel in 2024 – 25.
- BPCL Mumbai Refinery has always been committed to confirming all eligible environmental standards.

21 HEALTH

Health is the level of functional efficiency of a living being. In layman terms, health usually means to be free from illness, injury or pain. The World Health Organization (WHO) defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. To lead and enjoy a wholesome life one must have sound health.

Brihanmumbai Municipal Corporation largely takes care of citizen health through Health Care Services. The State Government, Private organizations and Private medical practitioners also contribute in the providing health care services. Health care is a primary the responsibility of Brihanmumbai Municipal Corporation. Health Infrastructure 3-Tier System in BrihanMumbai Municipal Corporation as shown in Table 21.1

Table No.21.1: Health Infrastructure 3-Tier System in BrihanMumbai Municipal Corporation

PRIMARY	Health posts	212
	Dispensaries	190
	Maternity Homes	29
SECONDARY	Peripheral hospitals	16
	Specialty hospitals	5
TERTIARY	Major hospitals (Medical and Dental colleges) (5 main hospitals and 1 H.B.T. hospital joint with Cooper hospital.	5

Source: Health Dept.

Environment contributes to the health of human being both in positive and negative ways. Better nutrition and clean environment will help to increase life span whereas, polluted environment will cause deterioration of health. Environmental hazards are responsible for as much as a quarter of the total of diseases worldwide and more than one third among children. Environment plays a major role in etiology of numerous diseases like water borne diseases (Gastroenteritis, Jaundice), vector borne diseases (Malaria, Dengue, Chikungunya) and non-communicable diseases like Hypertension, Diabetes, etc.

The health services are provided in two ways. There are hospitals, dispensaries and maternity homes all over the city catering to the medical needs of the people, while on the other hand there are Outreach Services. Under National Urban Health Mission 30 new health centers are started too. Objective of establishing health centers is to provide health service for implementation of family welfare program and outreach services for mother and child.

Table No. 21.2: Health Statistics- Birth and Death Rates			
	Year 2022	**Year 2023**	**Year 2024**
Birth (Registered)	133805	130562	117606
Birth Rate/1000 population	10.32	10.03	09
Death (Registered)	94553	39255	93852
Death Rate/1000 population	7.29	7.17	7.19
Infant Mortality	2962	2832	-
Infant Mortality Rate/1000 live birth	22.14	21.69	-
Maternal Death	92	89	70
Maternal Mortality Rate/100000 live birth	68.76	68.17	59.52

Source: Health Dept.

Table No.21.2. It shows Birth and Death Rates and also Infant and Maternal mortality in the year 2022 to 2024. In Year 2024 Birth rate in Mumbai was 9.0/1000 population and the Death rate was 7.19/1000 population in the year 2024 and Maternal Mortality rate 59.52/100000 Live Births for mothers.

Kasturba Hospital (Infectious Diseases):

Kasturba Hospital if located in the middle of city. It is largest infectious Diseases hospital in the South East Asia, which admits patients of all the infectious diseases.

- At this hospital cases of infectious diseases Le. Chickenpox, Measles, Mumps, AFP, Hepatitis (A,B,C,E and others hepatitis) D/V, Typhoid Fever, Cholera, Dysentery, IIIN1. H3N2, Diphtheria, Whooping cough, Fever, Meningitis, Malaria, Leptospirosis, Dengue, Rabies, SARS, Ebola Virus, Covid 19 and newly emergency infectious diseases (except Tetanus, Tuberculosis Venereal Diseases and Leprosy) are isolated and treated cases of Plague and Cholera are compulsory transferred to this hospital.
- Kasturba hospital has well equipped 25 bedded Burns ward and 20 bedded intensive Care Unit with Ventilators and other equipments.
- Separate ward was establishment for management for H3N2, Covid 19 and Meases cases.
- Three Oxygen Generation Plants of 1068, 360 and 190 liters per minutes are available at Kasturba Hospital for Management of Critically ill infection diseases patients
- Kasturba Hospital has 10 bedded Negative Pressures isolated ward for admitting patients with different infectious diseases
- Kasturba hospital has T.B. lab for diagnosis of MDR-TB patients
- It is proposed to start Bio Safety Level 3 lab in Kasturba Hospital
- Kasturba hospital has Hyperbaric Oxygen Therapy Department for management of head Injury and gangrene patients.

Table No. 21.3 : Report of different diseases April 2024 to March 2025			
Sr. No.	**Diagnosis**	**Cases**	**Death**
1	Dengue	851	01
2	Swine Flu [H1N1]	38	02
3	Leptospirosis	147	----
4	Malaria	3690	02
5	Covid-19	12	02
6	Measles	78	---

Group of Tuberculosis Hospitals Sewri :

Mumbai District TB Control Society provides various diagnostic and treatment services through 24 District TB Officers posted in 24 districts (Wards) of Mumbai and around 58 Treatment Organisers from Health Dept. of BMC and 458 contractual staff working in the National TB Elimination Program (NTEP) under the Mumbai District TB Control Society.

As per directions of Hon.Brihanmumbai Municipal Commissioner ward wise strategic plan is being prepared to achieve the goal of "TB Mukt Ward" and "TB Mukt Mumbai"

Special initiative under taken for TB Control:

1. 100-Day Intensified Campaign -Tuberculosis Elimination Campaign

- As per the instructions from the Central Tuberculosis Division and the directives from the state government, the "100 Days Campaign" has been implemented in 26 wards of Brihanmumbai Municipal Corporation from December 7, 2024, to March 24, 2025.
- The objectives of the campaign include increasing the speed of detecting tuberculosis patients, reducing the mortality rate due to tuberculosis, and preventing the spread of tuberculosis to avoid new cases.
- A survey of more than 15 lakhs high-risk population was undertaken of which 60944 NAAT tests were conducted for Presumptive TB cases. Mobile X-ray van was deployed to assist in diagnosis

2. Upgradation of Diagnostic Facility

- In Mumbai, 44 CBNAAT and 34 TruNAAT machines are available providing High quality diagnosis of TB including Drug resistant TB totally free of cost.
- Culture and DST lab at GTB Sewri TB Hospital has been upgraded to Intermediate Reference Laboratory (IRL) performing 50-60 Cultures and Drug sensitivity tests daily.
- TB lab at Kasturba Hospital is now being made functional to add additional diagnostic capacity for TB and New Culture and DST lab is proposed at Cooper Hospital.

3. 'Differentiated TB Care' for all TB Patients

- Differentiated TB care is offered by Mumbai to all TB Patients at time of diagnosis to identify high risk factors for appropriate management to improve the treatment outcomes. Under this initiative 11,349 tuberculosis patients have been registered in Nikshay Portal.

4. Initiation of advanced Treatment Regimen like BPaLM for Drug-Resistant Tuberculosis Patients

- In Mumbai, 31 DRTB Clinics in public and private sector are providing Free Anti TB treatment for Drug resistant TB.

- New six months shorter TB regimen, BPaLM consisting of 4 Drugs has been rolled out in Mumbai to improve treatment outcomes of Rifampicin/Multi Drug Resistant TB patients. Till date, 43 drug-resistant tuberculosis patients have been initiated on this regimen.

5. Use of Whole Genome Sequencing (WGS) for TB diagnosis

- Whole genome sequencing is advanced molecular test which provides information about different types of mutations responsible for resistance to all 18 anti TB drugs and information about Non-Tuberculosis Mycobacteria (NTM), mixed infection and co-infection.

- Brihanmumbai Municipal Corporation has conducted pilot test for Whole Genome Sequencing on 2484 samples and this test will be included in the program algorithm after due approvals of NTEP.

6. Handheld X-Ray Machines

- The State Tuberculosis Office has provided Mumbai with 24 handheld X-ray machines which are now being used for diagnostic purposes. Also, 24 Hand Held X-ray machines along with manpower will be provided under CSR by the Brihanmumbai Municipal Corporation.

7. Initiatives for prevention of TB

- NTEP in collaboration with ICMR started an adult BCG vaccination program since December 2024 for the high-risk population in Mumbai in 12 interventional wards of Mumbai. 16,735 beneficiaries have been given a BCG vaccination till March 2025.

- The CY-TB test has been introduced which detects individuals who have been infected with tuberculosis bacteria but do not yet show symptoms of the disease. If the test is positive, Preventive TB medication is advised once active TB is ruled out. Till March 2025, 3061 high risk individual and contacts of TB patients have undergone CY TB test in which 690 were positive and 448 beneficiaries have been given TPT.

8. Nutrition Food Basket

- Every month, Nutritious Food basket is given to all the TB patients during the course of TB treatment by Ni-kshay Mitras which helps TB patients to get nutritious diet and improve immunity.

- Till now 118633 food Baskets have been distributed in 2 years.

Following awareness activities were done for World TB Dav 2025:

- TB awareness messages including 10 symptoms (Cough for more than two weeks, Fever, Weight loss, Night sweats, Loss of appetite, chest pain, shortness of breath, coughing up blood or mucus. fatigue and swelling in the neck) of TB displayed on various media platform and through bike rallies, Marathon, Health talks, street plays, Jingles etc. Innovative programmes involving patients and their families conducted in all 26 wards of Mumbai.

TB STATUS OF LAST 3 YEARS

Year	Total cases (notified)	Within Mumbai	Out of Mumbai
2022	65747	55284	10463
2023	63575	50206	13369
2024	60633	53638	6995

TB Control Services of Brihanmumbai Municipal Corporation, Tuberculosis Hospital Group and City Tuberculosis Control Programme:

- The Tuberculosis Hospital Group of Brihanmumbai Municipal Corporation is the largest tuberculosis hospital in Asia. Patients of drug sensitive and drug resistant (MDR, XDR, TB) diseases come to this hospital for examination and admission.
- Pulmonary Rehabilitation Center has been started for tuberculosis patients who have recovered from tuberculosis, and so far 6356 tuberculosis patients have benefited from the Pulmonary Rehabilitation Center
- Alcoholic Engenium has been made operational for addicted tuberculosis patients.
- Two modern machines have been installed in the hospital for disposal of bio-medical waste.
- A.R.T. The center (MDACS attached) is functional since 14 August 2020.
- 24x7 digital X-ray facility is available in the hospital.
- 2 different outpatient departments namely Drug Sensitive and Drug Resistance are functioning 24x7 for the patients.
- A 10-bed Urology Intensive Care Unit is functioning for the TB patients.
- The laboratory in the TB Hospital Group has been recently modernized and upgraded to an Intermediate Referral Lab (IRL). Therefore, at present, all the sputum tests required for the diagnosis of TB such as GeneXpert, TrueNAAT, LPAA & Culture DST are done under one umbrella in the TB Hospital Laboratory. In the Tuberculosis Hospital, sputum samples coming from various parts of Mumbai under the National Tuberculosis Eradication Program are tested in the Tuberculosis Hospital laboratory. Also, the capacity of GeneXpert has been increased from 8 samples to 16 samples. Also, culture and sensitivity tests are currently done for four drugs for tuberculosis.
- All employees working in the Tuberculosis Hospital are given a healthy diet (Supplementary High Protein Diet) in all three shifts so that it helps in improving the immunity of the employees.
- All employees working in the Tuberculosis Hospital are checked quarterly for tuberculosis and other diseases (diabetes, blood pressure and other diseases) and appropriate treatment is started.
- A new outpatient department has been started for non-communicable diseases in tuberculosis patients, and patients and their relatives are examined in this department.

Statistical Information Year Wise 2019 To 2023

YEAR	OPD(NEW/OLD)	ADMISSIONS
2020	21637	3605
2021	22562	4157
2022	21939	4095
2023	20730	4200
2024	20607	4354

Operations

Year	Major	MINOR (Including Bronchoscopy)	Total
2020	00	523	523
2021	00	614	614
2022	00	769	769
2023	04	1071	1055
2024	01	1678	1679

Acworth Municipal Hospital for Leprosy, Wadala:

Acworth Municipal Hospital for Leprosy is established by the then Municipal Commissioner of Mumbai Mr. H.A. Acworth on 7th November 1890 Since 1st April 1991, the hospital has been taken over by Brihanmumbai Mahanagarpalika as one of the specialized hospitals under the administrative control of the Executive Health Officer.

Services provided by Acworth Municipal hospital for leprosy:

1. Inpatient services:

Total active beds in the hospital is 100 beds. At present average occupancy are around 55%. The most of the patients are admitted in the hospital due to the old leper Act. Old, deformed, abandoned patients are provided shelter in the Hospital. Majority patients are living here more than 20 years almost on a permanent basis. Presently patients are admitted for ulcers and lepra reaction.

2. Outpatient services:

Out-patient services include Physiotherapy , Social service, Laboratory, Dressing and Pharmacy. Daily average O.P.D. attendance is about 45 patients per day.

3. Field Work:

Under National Leprosy Elimination Programme, Hospital carries out IEC Activities in its project area i.e. Municipal wards (E,F/South and F/North) covering about 16 lacs population.

4. Training:

The hospital provides training in leprosy to post-graduate and undergraduate allopathy and non-allopathy medical students as well as to student nurses, Social Science and O.T./P.T. students. The hospital also offers training to Govt. Medical Officers, Non-medical assistants.

5. Medical records:

The hospital maintains statistical records and generates various reports thereby assessing the progress of N.L.E.P. in entire Mumbai.

6. Collaborative Programme of Acworth Hospital with NGOs:

1. **Acworth Leprosy Museum:** Provides scientific information about all aspects of leprosy.

2. **Footwear Unit:** MCR footwear, Splints are provided to the leprosy patients at concessional rates.

Table 21.4 Mumbai District Statistics 2024-25			
	2022-23	2023-24	2024-25
Total Leprosy Patients	626	602	620
MB patients among total patients	482	416	434
PB patients among the total patients	144	186	186
PR for Mumbai (Per 10000 population)	0.45	0.4	0.4

Table 21.5 Acworth Hospital Statistics 2024-2025	
Total Leprosy Patients in the Project area (E, F/S and F/N Ward)	72
MB patients among total patients	50
PB patients among the total patients	22
PR for AMHL (Per 10000 population)	0.4

Health Education:

Acworth Municipal Hospital provide health education at E, F/S and F/N Wards. Which helps to eradicate misconceptions about leprosy. On the occasion of death anniversary of Mahatma Ghandhiji from 31st January to 13th February, leprosy fortnight is arranged by this hospital every year. During this fortnight all active organizations effectively carry out public awareness and health education movement in their work premises.

Mumbai District AIDS Control Society:

Mumbai District AIDS Control Society (MDACS) registered under Charitable Trust Act is established by Brihanmumbai Municipal Corporation under the guiding principles of National AIDS Control Organization for prevention and control of HIV / AIDS in Mumbai. Currently National AIDS Control Programme-Phase V is being implemented in the country. Major responsibilities of MDACS are as follows:

1. Prevent the spread of HIV / AIDS for reducing annual new HIV infection and AIDS-related mortalities by 80% by 2025-26 from the baseline value of 2010.

2. To attain dual elimination of vertical transmission, elimination of HIV/AIDS related stigma while promoting universal access to quality STI/RTI services to at risk vulnerable population by providing care, support and treatment services to people living with HIV / AIDS (Infected and affected).

Mumbai district AIDS control society provides services free of cost through below mentioned divisions.

Basic Services:

- Integrated Counseling and HIV Testing Centres (ICTCs) are established across the city in all Government / Municipal Hospitals / Maternity Homes. These services are freely available to all Walk-in / referred clients. Trained Counselors and Laboratory Technicians perform HIV Counseling and testing using standardized testing protocols with robust quality control.

- Early detection of HIV infection in pregnant woman is the mainstay of the program for preventing the transmission of infection from infected mother to baby. For this, Multi Drug Antiretroviral treatment is initiated during first trimester of pregnancy.

- Early Infant Diagnosis: All infants born to HIV infected mothers are screened at 6th week after birth and regularly till 18 months for HIV infection.

- There are 246 ICTCs which includes 44 stand-alone ICTCs, 5 mobile vans and 197 Facility Integrated ICTCs, 7 Metro sites and also 1063 Private Nursing Home/ Corporate Hospital under Public Private partnership (PPP) providing facilities of counseling and HIV testing to ensure the access and availability of HIV counseling and diagnosis services.

Anti Retroviral Therapy (ART):

Treatment for HIV positive patients is made available through 20 ART Centres set up in various Hospitals in Mumbai. These centers are in 7 Medical Colleges, 6 Peripheral Hospitals, 5 are in public private partnership viz. Godrej, LandT, Wadia, K. J. Somiya and Mumbai Port Trust (MbPT) Hospitals, 2 in Brihanmumbai Municipal Corporation special hospitals (STD Clinic and TB Hospital). ART center for pediatric patients is operated through Paediatric Centre of Excellence, LTMG, Sion Hospital. Total 41289 patients living with HIV / AIDS are registered in active care of which 41275 patients are on lifelong treatment.

Blood Safety:

Preventing HIV transmission through infected blood by ensuring access to safe and adequate blood for the needy patients is one of the important services of MDACS. 24 Government, Brihanmumbai Municipal Corporation and Trust blood banks in Mumbai are supported by provision of trained manpower, HIV testing kits and grants. All the blood units collected in the blood units collected in the blood banks are tested for HIV, Hepatitis B, Hepatitis C and other blood born infections. Regular Voluntary Blood Donation Camps are organized in collaboration with Blood Banks and NGOs. Over the years, the number of voluntary blood donors has increased significantly reducing the risk of HIV infection through blood transfusion.

Sexually and Reproductive Health Services:

Unsafe sexual behavior leads to transmission of Sexually Transmitted Diseases (STDs) and HIV. STDs can be easily diagnosed and effectively treated by 'syndromic management treatment' approach. 27 designated STI/RTI clinics (DSRC) are set up in public health hospitals throughout the city with trained doctors and counselors who give treatment and counseling, condom promotion, partner notification and partner treatment. Effective management of STDs and counseling on responsible sexual behavior at STI clinics helps in prevention of HIV transmission. Regional STI training Reference Laboratory at B.Y.L. Nair Hospital is set up for etiological diagnosis of STIs.

Targeted Intervention:

Targeted Interventions are aimed at offering prevention and care services to high-risk groups viz Female Sex Workers, Men having Sex with Men, Transgender and injecting Dug Users. The bridge population of slum migrants and long distance Truckers are also provided with the information, means and skills to minimize HIV transmission. 36 Targeted Intervention projects under NACO Budget and BMC funded 1 Targeted Intervention project totaling to 37 Targeted Intervention projects are working through NGOs/CBOs who are providing prevention services including HIV/STI screening and treatment services to these high risk groups in the city.

Information, Education and Communication:

Various awareness campaigns are held using mass media, mid media and outdoor campaigns approach among youth, slum migrants and high risk groups for reducing risk behavior. Events are organized to increase the awareness among general population, especially for women and youth on various days viz. National Voluntary Blood Donation Day, National and International Youth Day, World AIDS Day, International Women's Day.

Table No.21.6: HIV/AIDS Control Programme Report (F.Y. 2024-25)

HIV testing at Integrated Counseling and Testing Centers in Mumabi	Tested	Positive
General Clients	614855	3074
Pregnant Women	193395	75

Treatment for HIV positive patients at ART Centers in Mumbai	Adult	Children	Total
Number of HIV Positive patients registered in active care	39846	1443	41289
Number of HIV Positive patients on Anti-Retroviral Treatment (ART)	39833	1442	41275

Present HIV/AIDS control Situation:

HIV positivity trend has witnessed a significant decline among the general clients (from 5.4% in 2011 to 0.49% in 2024) and Pregnant Women (from 0.36% in 2011 to 0.04% in 2024) in Mumbai.

Environmental Pollution Research Center (EPRC): Seth G.S. Medical College and King Edward Memorial Hospital

Environment is of vital importance to health. The Brihanmumbai Municipal Corporation has undertaken stupendous efforts to maintain environmental hygiene in the city. While the outdoor environment is measured continuously, it is the indoor environment that interacts with citizens up to 80% of the time. Lungs are the organs that are constantly interacting with the environment while efficiently carrying out their major work of oxygenation and ventilation among others functions like defence against microbes and metabolism.

Indoor air quality monitoring in Sion and Worli areas of Mumbai

There has been a great emphasis on indoor air quality in recent years. We had studied the common disinfectants and cleaning agents to understand the volatile organic compounds (VOCs) generated in household by these agents. There are established permissible standards for carbon dioxide, HCHO and total volatile organic compounds (tVOC) by agencies like the USEPA. VOCs have been studied in ambient air and in specialized indoor settings by various researchers in Mumbai. Mumbai homes differ from those abroad in some aspects- Mumbai is a coastal city, there exists a 'çhawl system', there are some high-rise buildings with HVAC systems in place while in most homes, the reliance is on natural ventilation. In the year 2024-25 Indoor air quality monitoring with portable air quality detector was undertaken for CO2, HCHO and TVOC with temperature and humidity parameters along with a questionnaire-based survey for respiratory morbidity. A total of 300 households were studied for indoor air quality during October 2024 in Worli (BDD chawl) and November 2024 in Sion area (Karmavir Dadasaheb Gaykwad Nagar) was studied (Table 1). In all 300 households monitoring for indoor air quality was found to be within normal limits for CO2, Formaldehyde and Total VOC levels (Table 2 and Figure 1). Respiratory morbidity was 2 %. (1,2)

Studies have been conducted in the past measuring the indoor volatile organic compounds in Mumbai. However, this study has measured indoor air quality along with respiratory morbidity. It establishes that the normal indoor air levels of carbon dioxide, formaldehyde and volatile organic compounds are lower than the permissible values. The respiratory morbidity in the areas studied is also low. This study was conducted in buildings (chawl system) while there was no ongoing renovation/ painting work.

Table 21.7: Baseline characteristics of participants in indoor air quality survey

	All (n=300)	Worli (n= 202)	Sion (n=98)	P value
Age (years)	41.82±17.02	41.6±17.62	42.29±15.78	0.7437
Female (%)	153 (51)	101(50)	52 (53.1)	0.61
Dusty occupation (%)	20 (6.6)	12(5.9)	8 (8.1)	0.46
Comorbidities (%)	53 (17.6)	33 (16.3)	20 (20.4)	0.385
BMI (kg/m2)	24.04±4.25	23.9±4	24.31±4.72	0.44
Total housing area (sq. ft.)	153.73±65.94	124.79±24.03	213.37±82.87	<0.001
No. of family members in house	4.5±1.6	4.6±1.8	4.2±1.4	0.03
Per capita housing area (m2)£	30 (23.5)	30 (16)	53.43 (28.96)	<0.001¥
Subjective evaluation of sanitary conditions				
Good	29 (9.7)	13(6.4)	16(16.33)	0.006
Satisfactory	271(90.3)	189 (93.6)	82 (83.67)	
Smoking history (%)	2 (0.6)	2 (0.9)	0	
Respiratory symptoms (%)				
Cough (%)	4 (1.3)	4 (1.9)	0	
Breathlessness (%)	6 (2)	4 (1.9)	2 (2)	

All values presented as mean±SD.

£ Median (IQR) values reported

¥ p<0.05, Mann-Whitney U test

Table 21.8: Results of indoor air quality monitoring as a part of the survey				
	All (n=300)	**Worli (n= 202)**	**Sion (n=98)**	**P value**
CO2 (ppm)	455.5 (38)	458 (35.5)	453 (42.75)	0.007*
HCHO mg/m3	0.0055 (0.01)	0.005 (0.011)	0.01 (0.009)	0.06
tVOC mg/m3	0.0125 (0.016)	0.014 (0.039)	0.01 (0.01)	<0.001*
Temperature °C	30 (2.25)	30 (2)	31.5 (3.75)	<0.001*
Humidity (%)	72 (12)	73 (11)	32 (52)	<0.001*

All values expressed as median (IQR)

***p<0.05, Mann-Whitney U test**

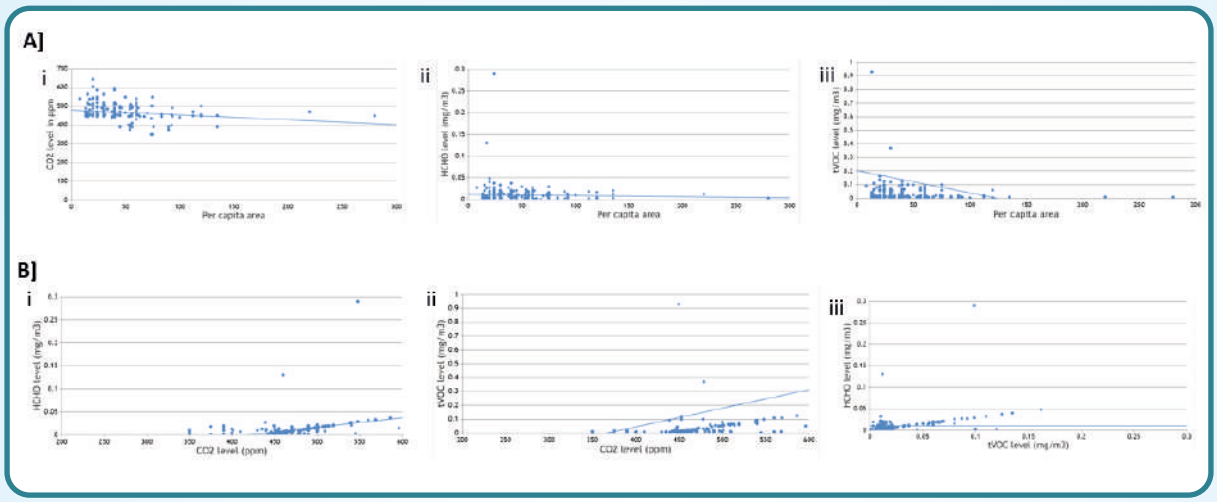


Figure 1 Scatter plots depicting correlation of indoor air pollutants with per capita area (panel A i, ii and iii) and between indoor air pollutants (panel B i, ii and iii).

Study of lung age: Lung Health initiative

To promote heath education regarding heathy lungs measurement of pulmonary function test results is analysed with respect to chronological age of population surveyed from Mumbai city by EPRC Team.

In healthy adults' lung capacity increases till the age of 25-30 years. It starts declining after the 3rd decade by about 10 ml every year. In Gerontology, 'Aging itself is not a disease'. However, physiological changes in organ systems result in decreased functional reserve. Environmental Pollution Research Centre conducts community based respiratory morbidity surveys. Up to age of 25 years lung Capacity in healthy adults increases. After the age of 30 years there is minimal decline in lung capacity in a decade up to 40 years (10 ml). After the age of 40 years, lung capacity can decrease by about 100 ml per decade (in10 years) and after age of 80 years lung capacity decreases by about 140 ml per 10 years. Various confounding factors responsible for accelerating lung aging include personal habits like smoking.

Morris and Temple introduced the concept of 'lung age' in 1985 with focus in promoting smoking cessation. It was meant to allow easier understanding of declining lung function by smokers, eventually inspiring them to quit smoking. The causation of chronic obstructive pulmonary disease has expanded on new evidence and air pollution and ambient air quality are considered to be important risk factors for developing COPD. Exposure to air pollutants is associated with lung aging, that is, a decline in lung

function. It has been proven that the concept of lung age is easier to understand by the general population and can bolster health education aimed at increasing the adoption of healthy behavior. More recently, the concept of difference in the lung age and the real age has been shown to predict post-operative complications. Various methods have been used to calculate the lung age. A simpler formula of the difference in predicted and observed FEV1/FVC has been used in smokers. Regression equations for predicted values have been used in the esophageal cancer patients. In this study, we aimed to study the lung age of people living in Mumbai and to compare the use of traditional interpretation of pulmonary function testing with that of lung age. (3,4)

We studied the pooled data of subjects who had performed pulmonary function tests as a part of the health surveys conducted by Environmental Pollution Research Centre. These studies are performed in the community and includes subjects who volunteer to be a part of the survey. The major difference is that these subjects have not come to the hospital with respiratory disorders. In community-based surveys, history of respiratory symptoms is included as a part of the questionnaire. Pulmonary function tests are used for objective measurement of the subjects' lung functions.

We analyzed pulmonary function tests of total 1534 subjects. 1035 subjects had no respiratory symptoms. Among the subjects who reported respiratory symptoms including cough and breathlessness, traditional lung function interpretation diagnosed abnormality in 51.1%. Lung age was greater than the chronological age in 61.1% symptomatic subjects. Therefore, using the criterion of lung age greater than the chronological age as objective evidence of respiratory impairment identified greater number of symptomatic subjects.

Calculating lung age, thus far a tool validated for making smokers quit smoking, may prove to be a promising parameter in evaluating health in the community. However, this shall need validation through further research. This is another area the unit shall focus on in future.

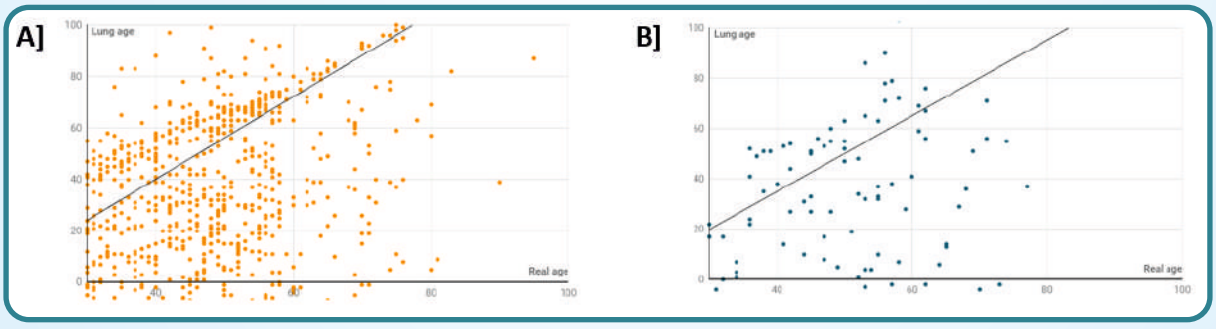


Figure 2 : Relationship between lung age and real (chronological) age in non-smokers (A) and smokers (B)

EPRC survey timeline From April 2024 to March 2025

Table 21.9: Details of survey conducted by EPRC			
Sr. No.	**Date**	**Area**	**Total**
1	11.06.2024 to 14.06.2024	Deonar Dumping ground, Govandi Questionnaire - 101 Census - 22	123
2	27.08.2024 to 28.08.2024	9 Pumping Station Medical survey	31
3	04.10.2024 to 31.10.2024	Shivshankar Krida Mandal, Vorli BDD Chowl Census – 100 Medical survey - 234	334
4	26.11.2024	Karmavir Dadasaheb Gaikwad Nagar Buddhavihar Society, Sion Census – 32 Medical survey - 128	160
5	01.04.2024 to 31.03.2025	Asthma Education & Counseling	988
		Total	**1636**

Pulmonary Function Tests Workload from April 2024 to March 2025

Table 21.10: Workload of pulmonary function testing (PFT) laboratory from April 2024 to March 2025	
Spirometry	2459
RV/TLC	545
DLCO	334
FOT	85

Arterial Blood Gas Laboratory

Table 21.11: Arterial blood gas laboratory (ABG) workload from December 2023 to November 2024				
Month	ABG	Electrolytes	COOX	Metabolites
December	5253	763	763	763
January	5824	927	927	927
February	6444	943	943	943
March	6152	813	813	813
April	5538	828	828	828
May	5907	872	872	872
June	6219	932	932	932
July	6655	859	859	859
August	5893	747	747	747
September	5725	859	859	859
October	5420	879	879	879
November	5692	813	813	813
Total Number of Arterial Blood Gas Analysis	70722	10235	10235	10235
Total	**101427**			

WORLD ENVIRONMENT DAY- Department of Pulmonary Medicine and Environmental Pollution Research Centre 5th June 2024, KEM Hospital.

On 5th June 2024, World Environment Day was celebrated at Seth G.S. Medical College and K.E.M. Hospital at Main Lecture Theatre, organized by Department of Pulmonary Medicine and Environmental Pollution Research Centre. There were 186 participants including medical students, physiotherapy students, Nursing students, Faculty and staff from medical college. A Quiz competition on 'Environmental Awareness' was conducted for undergraduate students. Theme of the program was "Restoring Lung Health". 3rd Dr. S.R. Kamat Oration was delivered by Padmashree Prof. Dr. Randeep Guleria on 'Air Pollution and One health'Feedback received regarding academic content is excellent.

To create awareness regarding 'Lung Health and Environment', there was an educational talk by faculty aired on All India Radio, Asmita Vahini (March 2025). The H.O.D. of EPRC Department participated in seminars on Air Pollution and Lung Health in August 2024 and March 2025.

Lungs are unique in their physiological function- constantly exposed to the outdoors, continuously working and eternally interacting with the environment. The concept of lungs as the epicenter of illness with poor environments has evolved into that of wellness with healthy environments. 'Lung health' is not just a concept, it is a mission. It is with a vision of wellness that we continue on our journey of relentlessly pursuing lung health.

22 DISASTER MANAGEMENT

Disaster Management And Central Complaint Registration System:

The Disaster Management Department (DMD) was set up in the year 1999 at the Municipal Head Office to 'Communicate and Coordinate' during disasters in Mumbal. Department is upgraded with modern equipments situated at second floor in BMC Head Office.

District Disaster Management Authority:

No.DMU-2017/C.R.No.344(A)/DMU-1.- By sub-sections (1), (2) and (4) of section 25 of the Disaster Management Act, 2005 (53 of 2005) and Maharashtra District Disaster Management (Constitution of District Disaster Management Authority for the districts of Mumbai City and Mumbai Suburban) In exercise of the powers conferred by rule 3 of the Rules, 2018 and vide Government Notification Revenue and Forest Department No. DMU 2010/CR, The Government of Maharashtra 117/DM-1, the Government of Maharashtra has established the Brihanmumbai Disaster Management Authority for the districts of Mumbai City and Mumbai Suburban with effect from 6th June 2012.

Hon'ble Additional Municipal Commissioner (City) as the Chairperson of the District Disaster Management Authority for Mumbai City District and Hon'ble Additional Municipal Commissioner (Western Suburbs) (Senior Officer) has been appointed as the Chairman of the District Disaster Management Authority for Mumbai Suburban District.

Functions of Disaster Management Department:

1.Single-point source for all issues related to disaster management.

2.Hazard Vulnerability and Risk Assessment

3.Prevention and Preparedness

4.Coordinate with relevant agencies for reducing the severity of damage.

5.Response

6.Coordinate with relevant agencies for help and rehabilitation.

7.Command and Control agency between administration and field units.

8.Coordinate for early warning to citizens

9.Coordinate for arrangement of food and water during emergency situations.

10.Coordinate the transportation of stranded and injured people during disastrous situations.

11.Coordinate for the transportation of critically injured people on high priority.

12.Coordinate for setting up temporary shelters.

13.Coordinate with NGOs

Objectives of Disaster Management Department:

1.Coordinate for rapid and effective response during any disaster.

2.Improve coordination among all the responding agencies.

3.To utilize social media through Public Relation Office for disseminating disaster related information among citizens.

4.To encourage preparedness on every level.

5.To encourage for helping disaster affected people.

6.Impart Training to the Citizens and stakeholders

Emergency Operations Centre (EOC):

The Disaster Management Department works 365 days x 24 hours throughout the year. It serves as a Command and Control agency between the administration and field units. It is a single-point source for all Issues related to disaster management. It coordinates with various stakeholders for quick and effective response during disasters.

1. Direct telephone facility

2. '1916' helpline with 30 hunting lines is available for citizens to register complaints related to major/minor accidents, fire, earthquake, bomb blasts, etc.

3. Twenty-four administrative ward control rooms, a backup control room, 3 major and 2 peripheral hospitals, and 28 outside agencies are connected with 58 hotlines that provide regular updates about the situation in Mumbai City and suburbs.

4. For monitoring disaster management activities, a video wall measuring 6200 mm long and 1744 mm in height has been installed. The video wall receives feeds from more than 12,000 CCTV cameras installed by Mumbai Police.

5. DMR is an advanced communication system implemented by the DM department in January 2022. This system is installed in 24 ward control rooms, with 37 stakeholders and on vehicles of designated municipal officers. A total of 326 DMR sets have been installed. This system has advanced features like broadcast calls, emergency calls, pre-recorded messages, intelligent audio, Bluetooth/Wi-Fi, man down and lone worker alerts, secured encrypted voice communication, better spectrum efficiency, integrated voice and data (speech to text and text to speech), double capacity per frequency spectrum, longer battery life, facility for group calls, individual calls, enabling data applications viz. dispatcher, GPS location tracking, geo-fencing, data and voice logger, over-the-air programming, text messaging, etc.

6. In case of interruption in the communication system, HAM radio is used as an alternative communication system.

7. Television sets are tuned to major news channels to keep abreast of the latest news.

The following types of complaints are registered in Disaster Management Department:

Thirty-two types of man-made and natural disasters have been identified that are likely to affect Mumbai City and its suburbs. These are categorized into 102 sub-major disasters, including major and minor accidents, landslides, tree falls or unauthorized tree cutting, water logging, house collapses, short circuits, floods, earthquakes, bomb explosions, etc. Upon registration, these incidents are communicated to the concerned agencies for providing necessary assistance

Automatic Weather Stations (AWS):

- 120 Automatic Weather Stations have been installed throughout Mumbai to get real time weather parameters.
- Weather Parameter data is refreshed after every 15 minutes.
- The data is monitored, analyzed and the warnings are issued accordingly.

Flow Level Censors:

- Flow Level Sensors are installed to monitor water levels in rivers and lakes. They provide real-time information to the Disaster Control Room.
- This will help to initiate early evacuation action in low-lying areas in the vicinity. Flow Level Sensors are installed at Dahisar, Poisar, Vakola, Mithi, and Oshiwara rivers, and at Powai and Vihar lakes."

Disaster Management Website:

The website dm.mcgm.gov.in shows the following Information: high tide-low tide timetable, weather forecast obtained from the India Meteorological Department, live weather parameters updated every 15 minutes, traffic updates, status of local trains, status of air traffic, etc.

Disaster Management App:

The Disaster Management Department, BMC, has launched a new Android and IOS phone application to aid citizens' response to disaster management and control. The app, Disaster Management BMC, will provide real-time information on weather parameters as well as help available within a radius of 500 meters from the distressed person.

Through the application, upon clicking on a landmark in the vicinity of the crisis, the app will automatically generate a list of police stations, hospitals, fire brigade stations, and ward office numbers within a radius of 500 meters.

Emergency Support Functions (ESF):

14 Emergency Support Functions have been identified as an integral part to carry out emergency response activities, including preparedness, and response during the event, and immediate recovery.

- In the events of major disaster or emergency where quick response is required, the lead agency will take action as per SOPs and work in coordination with the supportagencies and other ESF's to mobilize and deploy resources to the affected area in Mumbai.
- In peace time, each ESF Plan and prepare for emergencies through review of the planning assumptions, drills, table top exercises and preparation and reviews of the Standard Operating Procedures.
- Preparedness and planning activities are essentials to ensure adequate response and to identify areas of actions that would ultimately reduce disaster risk.

GIS based Command and Control System:

Disaster Management is shifting from a reactive to a proactive nature and approach. Therefore, risk reduction before disasters is a very important aspect in modern times.

It has also been learned from previous disasters that prediction and early warning are playing vital roles in disaster management, along with prevention, mitigation, preparedness, planning, relief, and rehabilitation. GIS-based technology provides the best platform for the development of such systems. GIS has emerged as an effective tool in disaster management since geospatial data and socio-economic Information need to be amalgamated for decision-making and in handling disasters or planning for tracking disasters in a scientific manner.

Prime objective of developing GIS is to help DMD for:

1. Prediction and early warning
2. Risk reduction, planning and preparedness in pre-disaster phase
3. Decision Support System
4. Damage Assessment and Relief Management

GIS combines layer of information on various themes to enable DMD to take the most appropriate decisions under given circumstances.

1. DMD generate maps both at micro and macro level indicating vulnerability to different extends under different threats perception.
2. Locations likely to remain unaffected or remains comparatively safe could be Identified.
3. Alternated routes to relief camps and important locations in the event of disruptions of normal surface communication could be worked out.
4. Smooth rescue and evacuations operation can be properly planned.

City Institute of Disaster Management and Research Centre (CIDM):

In case any mishap happens at the Municipal Head Office and the Emergency Operations Center on the 2nd floor is not accessible or cannot be operated, a backup control room has been set up at CIDM, Parel. This backup control room is equipped with hotlines, wireless communication, HAM radio, video wall, ESF, etc., similar to the EOC at MHO. CIDM provides comprehensive training on disaster management and first response to employees of BMC/Government/Private companies, school and college students, medical practitioners, police, etc., to make them aware of scientific methods of disaster management.

A 3D auditorium and an art gallery have been developed to show realistic information about various disasters. The major objective of these facilities is to make visitors aware of disasters and their preparedness. This art gallery has interactive dioramas, displays, photographs, and information boards for awareness generation about various disasters.

Post Graduate Diploma in Disaster, Fire and Industrial Safety Management (PGDDFISM):

Considering the importance of disaster management and the ever-increasing impacts of disasters in the future, CIDM has commenced a one-year PGDDFISM course in coordination with GICED and Mumbai University. This course offers scientific learning of concepts of natural and man-made disasters and techniques of every stage in DM. The primary aim of this course is to educate personnel from

government agencies and industries regarding appropriate response to impending disasters and to reduce the impact on mortality and the economy.

City Disaster Response Force (CDRF):

On the basis of the National Disaster Response Force (NDRF) at the national level and State Disaster Response Force (SDRF) at the state level, a City Disaster Response Force (CDRF) is being established at the city level for Mumbai. The objective of formulating CDRF for Mumbai is to develop self-sustainability for responding to disasters like major fires, collapsed structures, Chemical-Biological-Radiological-Nuclear incidents, etc. The personnel appointed for CDRF are from the existing Security Force and Mumbai Fire Brigade; doctors and paramedics of BMC are trained by the National Disaster Response Force (NDRF)

Central Complaint Registration System (CCRS):

An online complaint management system (CPWM Module) has been operational since 2000 to register civic complaints. The Central Complaint Registration System is working 24x7. Civic complaints pertaining to BMC are registered on phone number 1916 in the central control room and sent to the concerned department through the online system. Citizens can lodge their complaints online on the BMC portal i.e., http://portal.mcgm.gov.in

Un-attempted complaints are automatically escalated to higher authorities such as Assistant Commissioner, Deputy Municipal Commissioner, and Additional Municipal Commissioner

23 BRIHANMUMBAI MUNICIPAL CORPORATION PUBLIC RELATIONS DEPARTMENT

The Brihanmumbai Municipal Corporation (BMC) continues to provide essential civic services and infrastructure to the citizens of Mumbai, keeping in view the current needs and future requirements. The Public Relations Department has been consistently making efforts to disseminate information about these services, developmental works and projects to the public. thereby strengthening the image of the BMC in the public domain.

Various events, ceremonies and programs organised by the BMC; the projects and initiatives implemented; significant developments, the services and facilities extended by the BMC are regularly publicised through multilingual newspapers, news channels and social media platforms. Publicity is carried out through press releases, photographs, audio-visual clips and films, interviews of senior officials, newspaper advertisements, radio jingles, wall posters, hoardings and other means of communication, by the Public Relations Department.

The Department has also played a key role in disseminating information and raising awareness on various environmental developments, the impacts of climate change, tidal patterns, rainfall conditions, key environmental decisions, participation in related meetings and reporting these through newspapers, electronic news channels and social media to reach the citizens of Mumbai. During the year 2024-25, a total of 37 press releases related to environmental issues and allied matters were issued.

Throughout the monsoon period, the Public Relations Department ensured that accurate and up-to-date information regarding incidents across the BMC jurisdiction was communicated effectively to the public and the media. Topics such as rainwater harvesting and its role in improving groundwater levels were also highlighted through various publicity efforts.

To preserve and nurture trees, several activities and campaigns were conducted through the Gardens Department of the Brihanmumbai Municipal Corporation. These activities were given appropriate publicity. Notably, the environmental initiatives undertaken by the BMC have received recognition from an agency affiliated with the United Nations.

During the Ganesh Festival 2024, in compliance with the orders of the Hon'ble Court, immersion of Plaster of Paris (PoP) idols in artificial ponds was made mandatory by BMC. Awareness campaigns were conducted on the use of eco-friendly clay idols, idol immersion at sagnated artificial ponds and the collection of Nirmalya (worship-related offering ending as a wastel

During the Holi festival, the BMC administration made several public appeals promoting the celebration of the festival in an environmentally responsible manner. These included safeguarding the

Holika Dahan tradition while protecting the environment, use of natural colours, celebrating in a safe and healthy atmosphere, conserving water, and avoiding noise pollution.

All of the above-mentioned environmental awareness campaigns, programmes and initiatives were widely publicised by the Public Relations Department through multilingual newspapers, television channels and social media platforms.

In its efforts to control air pollution, the BMC administration issued detailed guidelines. ensured strict enforcement and took stringent action against violators. Consistent publicity was given to the various projects and initiatives undertaken to control and reduce air pollution. The ongoing Deep Clean Drive, a public sanitation initiative across Mumbai, was extensively covered through print, electronic and social media, leading to increased public awareness and active citizen participation. As a result, there has been a marked improvement in public consciousness and engagement regarding cleanliness.

24 MAHARASHTRA POLLUTION CONTROL BOARD

Maharashtra Pollution Control Board (MPCB) is implementing various environmental legislations in the state of Maharashtra, mainly including Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and some of the provisions under Environmental (Protection) Act, 1986 and the rules framed there under like, Biomedical Waste Management Rules, 1998, Hazardous Waste Handling Rules, 2000, Municipal Solid Waste Rules, 2000 etc. MPCB is functioning under the administrative control of Environment and Climate Change Department of Government of Maharashtra.

Some of the important functions of MPCB are:

- To plan comprehensive program for the prevention, control or abatement of pollution and secure executions thereof,
- To collect and disseminate information relating to pollution and the prevention, control or abatement thereof,
- To inspect sewage or trade effluent treatment and disposal facilities, and air pollution control systems and to review plans, specification or any other data relating to the treatment plants, disposal systems and air pollution control systems in connection with the consent granted,
- Supporting and encouraging the developments in the fields of pollution control, waste recycle reuse, eco-friendly practices etc.
- To educate and guide the entrepreneurs in improving environment by suggesting appropriate pollution control technologies and techniques
- Creation of public awareness about the clean and healthy environment and attending the public complaints regarding pollution.
- Plan and implement an all-inclusive program to prevent and control pollution of surface water, ground water and air pollution in the state .
- Advising the State Government on prevention and control of pollution • To collect and disseminate information on pollution and control measures for prevention and control of water and air pollution.
- Participating in, encouraging and organizing programs in examination and research related to pollution prevention and control .
- Coordinating with the Central Board to organize training classes for people involved in pollution prevention and control and various programs for public education .
- To fix standards for the quality of industrial effluents or urban effluents as well as receiving water bodies, improve them and classify water in the State.
- To provide a suitable and cost-effective method for treating industrial effluents or municipal effluents.

- To determine suitable standards for discharge of treated sewage and industrial effluents, taking into account the minimum dilution potential of any watercourse and the pollution tolerance of that watercourse.
- Making, varying or cancelling any order.

Air And Water Monitoring Network And Present Status Of The Environment :

Air pollution is a serious problem that has an impact on both our health and the environment. It results primarily from the emission of pollutants into the atmosphere through a combination of human activities and natural phenomena. The combustion of fossil fuels, both in industrial contexts and transportation, stands out as a significant source, releasing pollutants like Carbon dioxide, Nitrogen oxides and Particulate matter. Agricultural practices, involving the application of pesticides and fertilizers, release substances such as Ammonia into the air. Inadequate waste management practices, encompassing landfill decomposition and open burning, introduce pollutants like Methane and harmful gases. Deforestation and biomass burning contribute to air pollution by releasing Particulate Matter and gases. Industrial processes, including manufacturing and waste incineration, emit hazardous chemicals and pollutants into the air. Natural sources like volcanic activity and dust storms also contribute to air pollution. Household activities, such as cooking with solid fuels, add to both indoor and outdoor air pollution. Gaining insights into the origins and consequences of air pollution is essential for reducing our environmental impact, promoting sustainable behaviour and endorsing initiatives dedicated to enhancing air quality. The MPCB adopted the Air Pollution Act of 1981 to regulate and monitor air quality throughout the State. A network to measure air quality in key cities is established to comply with the Air Act, 1981 and to disseminate information about air quality in the State.

Monitoring Network and Region-wise Air Quality in Maharashtra

The Central Pollution Control Board established the National Air Quality Monitoring Programme (NAMP) in 1984 to comprehend how air quality varies across different locations and periods. The programme focuses on measuring three air contaminants that are critical for developing air quality management plans. These are Sulphur dioxide (So2), Nitrogen dioxides (NOX) and Particulate matter (PM10). The programme adheres to the CPCB monitoring procedure that calls for measuring the air for these pollutants every four hours for gases and every eight hours for particles, twice a week. The air quality is depicted through the Air Quality Index (AQI). It is a colour-coded guide that depicts air quality based on a number or collection of numbers computed from the levels of various air pollutants monitored over time. The higher the AQI, the worse the air quality and the greater the risk to human health. The locations wherein the data is collected is classified into three categories; Industrial, Residential and Commercial and the observations were made using NAAQM standards yearly average concentration as shown in the following sections. To better comprehend the data sets and approximate average number of samples that exceeded the standard limit, an Exceeding Factor (E.F. = Annual Average / Standard Value) was derived.

Laboratories:

- There are 08 NABL accredited (ISO / IEC 17025) and certified to safety standards (ISO 45000) laboratories. Out of these, 6 labs are approved by Ministry of Environment, Forest and Climate Change.
- In view of the growth of industries, Maharashtra Pollution Control Board is proposed to set up 04 new laboratories in Kolhapur, Nanded, Solapur and Amravati.
- Laboratory has sophisticated equipments installed according to BIS standards to analyse air, water and hazardous wastes.
- In accordance laboratories are made enable / upgrade as per the directive of the Central Government with the analytical and research project available ,the tender process is in progress for the purchase of 38 necessary equipment required.
- The Continuous Ambient Air Quality Monitoring Station of Maharashtra Pollution Control Board in the jurisdiction of Brihanmumbai Municipal Corporation are given in Table No.24.2 .

Table No. 24.1 : MPCB ; CAAQMS

Sr. No.	Location	Address
1.	Sion	Lokmanya Tilak Hosp. Sion
2.	Bandra	Government Polytechnic Collage, Kherwadi
3.	Kandivali	M/s. Mahendra and Mahendra Co. Western Express Highway, Kandivali- E
4.	Mulund	M/s. Jonson and Jonson Co, LBS Rd, Mulund
5.	Borivali	Near Lion Safari, National Sanjay Gandhi Park, Borivali (E)
6.	Vile-Parle	Coopar Hosp. And Medical Collage , Bhakti Vedant Swami Marg, Juhu Scheme, Vile-Parle (W)
7.	Kurla	Phoenix City Mall, LBS RD, Kurla (E)
8.	Powai	I I T Powai
9.	C. S. Intl. Airport (T2)	Near Gate No. 6, C.S.Intl. Airport (T2) Vile-Parle
10.	Colaba	Seveg Project, Near Afgan Church, ABS Rd, Navy Nagar, Colaba
11.	Worli	NEERI, 99-B, Dr. A.B.Rd, Worli
12.	B.K.C.	Near Asian Heart Hosp. Bandra (E)
13.	Chembur	Municipal School, Mahul Gaon, Chembur
14.	Malad	Mind Space, Malad (W)


MAHARASHTRA POLLUTION CONTROL BOARD
MIRA BHAYANDRA
AMBIENT AIR QUALITY DATA
04/08/2024
Sunday
03 46 PM
PARAMETER
STANDARD
VALUE
UNIT
Particulate Matter(PM10)
100 ug/m3
554.16
ug/m3
Particulate Matter(PM2.5
60 ug/m3
29.81
ug/m3
Sulphur Dioxide(SO2)
80 ug/m3
3.85
Nitrogen Dioxide(NO2)
80 ug/m3
12.43
ug/m3

25 MUMBAI CLIMATE ACTION PLAN

The various developments taking place in this metropolis have a direct impact not only on the economy of the state but also on the economy of the country. This coastal metropolis is currently facing many problems due to climate change. Unseasonal rain, heavy rainfall, precipitation, heat waves, urban pollution etc. against this backdrop, the 'Mumbai Environment Action Plan' prepared by the Brihanmumbai Municipal Corporation is the first step taken to curb environmental change and its possible side effects. Brihanmumbai Municipal Corporation is the first municipal corporation in the country to prepare such an Environmental Action Plan.

Concept of Planning:

Government of Maharashtra and Mumbai Municipal Corporation started preparation of Environment Action Plan on August 2021. This plan was prepared in collaboration with 'C40 Cities Network' and 'World Resources Institute of India'. Environmental thinkers, Academic Institution, Professional Consultants also have a valuable contribution in the planning process.

The launch ceremony of the ambitious initiative of the Mumbai Climate Action Plan (MCAP) concluded on 13th March 2022. The MCAP is committed to a net zero emission by 2050. The 'Mumbai Environment Action Plan' is a comprehensive strategy to address the impacts of climate change in Mumbai Metropolitan Region, focusing on mitigation measures and climate change adaptation.

Objective of Planning:

The 'Mumbai Environment Action Plan sets short-term and long-term environmental objectives for the city. Accordingly, considering the base year 2019, the target has been set to reduce carbon emissions in Mumbai by 30 percent by 2030 and 44 percent by 2040. Ultimately, carbon emissions are expected to drop to zero by 2050. Coal-based power generation is the largest source of carbon emissions. Therefore, by the year 2030, 50 percent of the total energy generation will be generated from sustainable sources. This ratio will be increased to 90 percent by the year 2050.

In the Mumbai Climate Action Plan, future emissions have been analysed on the basis of the following three scenarios.

1. Emissions will be around 64.8 million tons per year by 2050 if current day-to-day environmental conditions are not improved.
2. Existing and planned scenarios include local, regional or national measures policies and programs to reduce emissions. Accordingly, emissions are expected to be 51.3 million tonnes per year by 2050. It represents an increase of 119.4% over base year (2019) emissions.
3. While implementing the Mumbai Climate Action Plan, targets have been set to reduce emissions by 27% by 2030 and 72% by 2050.

The Mumbai Climate Action Plan aims to focus on six key actions:

1. **Electricity and Buildings:** To build energy and power generation climate-friendly infrastructure with minimal carbon emissions.
2. **Sustainable Transport:** Increasing the use of public transport and promoting zero carbon sustainable transport.
3. **Sustainable Waste Management:** Minimizing use of landfills emphasis on decentralized waste management solutions schemes. Also scientific management of landfill site.
4. **Urban Greening and Biodiversity:** Increasing urban green cover and permeable land cover to reduce urban atmospheric heat. Making green spaces available to all. To restore and conserve biodiversity.
5. **Air Quality:** Controlling on increase pollution. Enhancement of Air Monitoring System and Emphasis on Data Collection. Decentralization of planning as well as increasing public awareness on health.
6. **Floods and Water Resource Management:** Build mechanisms and infrastructure to cope with floods, increase water storage capacity, reduce pollution and restore aquatic ecosystems. Supply clean drinking water at affordable rates. Increasing availability of clean and safe sanitation and managing emergency risk.

Establishment of Special Cell to deal with Climate Change:

Dealing with the issue of climate change requires coordination between different departments. Mumbai's Climate Action Plan hasexpressed Strict implementation of the plan The need to have a designated authority for identification of carbon emission sources and their assessment etc. in. In this background, it is aimed to expand the scope of work of the BriahnMumbai Municipal Corporation's Environment Department and transform it into the 'Environment and Climate Change' Department. Additional Municipal Commissioner (City) will be entrusted with the role of coordinating officer of this department. Objectives of the newly established Department of Environment and Climate Change are;

1. Coordinating tools and using state-of-the-art technology across all departments to achieve climate goals.
2. Develop guidelines for new infrastructure and building projects.
3. Focusing on strict implementation of Mumbai Environment Action Plan.

The Department of 'Environment and Climate Change' will be divided into the following three sub-divisions.

1. Monitoring, Assessment, Report Sub Division: Coordinating with all Departments and Circle Offices of Brihanmumbai Municipal Corporation and implementation of Action Plan and Information on Greenhouse gas Emission Sources.
2. Remedial Planning Sub Section: Remedial Planning on Climate Change Issues.
3. Building and Transport Sub-Division: Efforts to reduce carbon emissions from buildings and transport sectors.

The Mumbai Climate Action Plan will submit a report every six months to the 'Maharashtra Council for Climate Change' to periodically ensure that the plan is being strictly implemented.

'Mumbai Climate Action Plan' is available in detail at http://mcap.mcgm.gov.in.

26 Mumbai's Air Pollution Mitigation Plan

1. Introduction

Mumbai City is witnessing a growth in construction and infrastructure projects. Large numbers of these projects and contributions from other sources such as Vehicular Emission, Industries, Unclean Fuel usage, etc. are creating a challenge in the form of rising Air Pollution levels.

Deterioration of Ambient Air Quality leads to environmental concerns and will lead to health problems based on the exposure duration and levels of pollutants.

Various short-term and long-term activities are being undertaken for the prevention and control of air pollution in Mumbai City. This winter, Mumbai witnessed noticeable rise in the air pollution levels due to prevailing longer calm weather conditions combined with emissions from various sources of air pollution.

Thus, to strike a balance between controlling pollution levels and strengthening Mumbai's infrastructure, the Brihanmumbai Municipal Corporation (BMC) has decided to introduce and enforce an immediate action plan for the mitigation and prevention of rising air pollution levels in Mumbai City.

2. Instructions from Hon. M.C on Mumbai's Air Pollution Mitigation Plan:

Hon. M.C. has constituted a committee on 13/02/2023 to formulate the strategy for implementation of "Mumbai's Air Pollution Mitigation Plan" as announced in the BMC Budget for the Year 2023-24.

The TOR's of the Committee are as under:

1. Find out the reasons for the high degree of air pollution in Mumbai.
2. Suggest measures to reduce / minimize air pollution due to infrastructure projects, such as Metro, Roads, SWD, Coastal Roads, STPs, etc.
3. Measures to minimize air pollution due to building construction projects.
4. Monitoring mechanism for overseeing the implementation of air pollution mitigation measures including penalizing the delinquents.

3.Proposed Action Plan:

Brihanmumbai Municipal Corporation (BMC) has conducted few meetings with committee members and technical advisory committee members to formulate Mumbai's Air Pollution Mitigation Plan. Literature Review of existing actions plans1, reports2, guidelines3 etc. was also taken into account.

Mumbai's Air Pollution Mitigation Plan will help to improve air quality by identifying immediate practical and result oriented actions including the long-term strategies that needs to be undertaken by concerned departments to reduce the emissions from various air pollution sources.

The Action Plan has included

Identification of Air Pollution Sources

- **To understand important sources of Air Pollution in Mumbai city for**

I) Source Wise Inventory of important information related to Air Pollution Source

- To generate the information related to sources,
- to effectively implement the mitigation plan targeting sources,
- corrective measures that can be undertaken during implementation,
- target setting for further improvement etc.

Categorization of Projects

- To enforce guidelines stringently for Building and Construction Projects and Road Projects.

II) Source Wise Actions to Mitigate Air Pollution

- To undertake immediate actions for prevention and control of Air Pollution.
- Details on the Long-term Actions that can be undertaken.

III) Checklist on Actions

- To assess the actions that will be undertaken by various departments.

IV) Source Wise Enforcement Mechanism for Immediate Action Plan

- To develop ward level task force for enforcement of immediate action plan.

V) Source Wise Monitoring Mechanism for Immediate Action Plan

- To monitor the progress of implementation of immediate action plan.

VI) Actions for Non-Compliance

- To undertake stringent actions on defaulters based on the inspection.

VII) Review Mechanism

- To review the implementation of the progress of implementation of immediate action plan.

VIII) Corrective Actions

- To undertake the corrective measures on limitations and the implementation of the progress of implementation of immediate action plan based on the periodic review.

4. Major Air Pollution Sources identified

◈	1) Dust arising from Construction and Demolition Activity from various projects,
◈	2) Road Dust and its Resuspension,
◈	3) Open burning of Solid Waste/Garbage and Other Waste,
◈	4) Unclean Fuel usage in Hotels, Restaurants, Dhabas, Bakeries, and Other Establishments,
◈	5) Crematoria,
◈	6) Industries :
•	Ready Mix Concrete (RMC) Batching Plant- Commercial and Captive Plant,
•	Casting Yard Plants,
•	Hot Mix Plants,
•	Red, Orange and Green Industries having high Air Pollution score and
•	Informal Sector- Pottery etc.
◈	7) Vehicular Emission,
◈	8) Unclean Fuel usage in Households,
◈	9) Pollution from neighbourhood areas of BMC,
◈	10) Other Sources- Pigeon Feeding Sites, Fire Crackers etc.

5. Controlof Air Pollution from Building Construction

5.1 Inventory of Building Construction Projects

The ward wise template will include information related to ongoing Building Construction Project

Number and Location of Building Construction Project having Plot Area	
>4,000 Sq. Mtr. (Large Project)	**<4,000 Sq. Mtr. (Small Project)**

5.2 Actions to Mitigate Air Pollution

These guidelines are mandatorily to be undertaken by all the ongoing and proposed Building Construction projects.

5.2.1 Guidelines for Building Construction Projects

Phase	Environmental Guidelines for Prevention and Control of Dust
Demolition Works	
Demolition of existing structure	1) Erection of continuous Dust or Wind Breaking Tin/Metal Sheet of more than 20 Feet Height around the periphery of entire Construction Project Site.
	2) Tarpaulin/Green Cloth/Jute Sheet to be used on scaffolding covering an entire area under demolition structure. Regular Cleaning of Tarpaulin or Jute Sheet to be undertaken.
	3) Avoid on-site Crushing and Hammering of Demolition Material.
	4) Water Sprinkling shall be continuously carried out so that the Debris shall remain in wet condition.
	5) Water Fogging should be carried out during the Excavation and Loading and Unloading of material.
	6) C and D waste generated within the premises / site of work is transported to the designated unloading site strictly as per the BMC approved C and D Waste Management Plan.
Construction Works	
During construction	1) Erection of continuous Dust or Wind Breaking Tin/Metal Sheet of more than 20 Feet Height around the periphery of entire Construction Project Site.
	2) Tarpaulin/Green Cloth/Jute Sheet to be mandatorily used to cover the floor where any construction activity is in progress and two floors below it. Regular Cleaning of Tarpaulin or Jute Sheet to be undertaken.
Excavation	1) During the start of the Excavation, soil strata shall be suitably watered/water sprinkled from time to time
	2) Water Fogging should be carried out during the Excavation, Loading and Unloading of material.
Storageof Construction and Demolition Material	1) Loose Soil, Sand, Construction Materials and Debris of any kind and quantity should be stored in the demarcated/dedicated area, properly barricaded and fully covered / enclosed / protected with tarpaulin.
	2) Complete Ban on dumping of Construction Material and Debris on Public Roads, Footpaths, Pavements and Open Area.
	3) Appropriate dust extraction system with appropriate Air Pollution Control Technology to be provided, if required.

Phase	Environmental Guidelines for Prevention and Control of Dust
Construction Works	
Super Structure Construction	1) Chutes, Skips and Transfer Point used for dropping/transfer of material shall be enclosed and should be properly operated and maintained to avoid emission and spillage.
	2) Water Sprinkling and Water Fogging should be carried out during construction and super structure construction activity, material handling operations, loading as well as unloading of material.
	3) Grinding, cutting, drilling, sawing and trimming should be carried out in enclosed area and Water Sprinkling and Water Fogging to be used.
	4) Mixing and manual batching of concrete at the site should be avoided. However, in unavoidable circumstances, it should be done in an enclosed/confined area.
	5) Mixing of materials for plaster should be undertaken in enclosed/confined area.
Transportation (Vehicles carrying construction material and construction debris and Other Vehicles	1) Inside the project premises, vehicle movement should be slow and should be carried out only on fixed route. The fixed route should be paved or hard top and regularly sprinkled with water.
	2) All vehicles should be thoroughly cleaned after unloading of material.
	3) All vehicles carrying material should be fully covered and protected so as to ensure dust from construction material or debris does not become air-borne during transportation.
	4) All vehicles carrying material should mandatorily obtain Pollution under Control Certificate (PUC) and shall produce it as and when asked.
	5) All vehicles carrying material should be loaded in proper manner to avoid spillage and overloading.
	6) After loading and unloading of material, two level tyre washing facility shall be provided at all exit points. The waste water generated shall be collected and treated/reused in construction process before disposal.
	7) C and D waste generated within the premises / site of work shall be transported to the designated unloading site strictly as per the BMC approved C and D Waste Management Plan.
Others	1) Only after mild water sprinkling- Brushing, Brooming and Sweeping should be undertaken on daily basis. Daily Cleaning to be carried out at Entry and Exit of Gate and Nearby Roads for removal of Dust. If possible, vacuum sweeping be carried out at Dust Laden areas/routes.
	2) Other unpaved surfaces and areas with loose soil should be adequately water sprinkled.
	3) Use of Green Walls, Screens, Other Vegetation Barriers and any other innovative dust minimizing technologies.
	4) DG Set (if installed) to be compliant with CPCB/MPCB Standards. If possible, Temporary Power Supply connections to be obtained.
	5) Mandatorily use of Personal Protective Equipment (PPE)- Mask, Goggles etc.
	6) All Project attracting Environmental Clearance shall carry out Third Party Ambient Air Monitoring every fortnightly from NABL/MoEF and CC Laboratory.
	7) Complete Ban on use of New/ Discarded Wood and/or Wood Products by construction workers, security guards etc. as a cooking fuel or bonfires to prevent open burning. 8) Discarded Wood and/or Wood Products from Construction and Demolition Activity to be disposed off in scientific manner to avoid the open burning.

Ready-Mix Concrete (RMC) Batching Plants- Commercial and Captive Plant- All the Ready-Mix Concrete (RMC) Batching Plants- Commercial and Captive Plant have to obtain the Maharashtra Pollution

Control Board (MPCB) Consent to Establish and Operate and have to comply to the 'Guidelines for citing criteria of Ready-Mix Concrete (RMC) plant' published by Notification vide No. MPCB/AS(T)/TB/B-436 dated 7th November 2016.

(https://www.mpcb.gov.in/sites/default/files/standing_orders/RMC_Gazette_circular.p df)

5.3 Categorization of Building and Construction Projects

Based on Plot Area, the Building and Construction Projects are categorized into

Sr. No.	Category of Projects	Plot Area Classification
1)	Large Projects	>4,000 Sq. Mtr.
2)	Small Projects	4,000 Sq. Mtr. पर्यंत

5.4 Checklist on Actions

Based on the above environmental guidelines, the checklist will be prepared by concerned department/ward.

5.5 Enforcement Mechanism

1. The above guidelines will be immediately circulated to all the Project Proponents / Architect / Land Surveyors through Online AutoDCR Systems.
2. The concerned Project Proponent and registered site supervisor shall be responsible to comply the said guidelines.
3. The guidelines will also be circulated for enforcement to other departments such as,

- Special Planning Authorities such as

  Maharashtra Housing and Area Development Authority (MHADA), Maharashtra Industrial Development Corporation (MIDC), Mumbai Metropolitan Region Development Authority (MMRDA), Mumbai Port Trust (MPT), Maharashtra State Road Development Corporation (MSRDC) and Slum Rehabilitation Area (SRA).

- Other Government Departments such as Airport Authority of India (AAI), Indian Defence, Mumbai Maritime Board (MMB), Public Works Department (PWD), Railways and Maharashtra Forest Department.

5.6 Monitoring Mechanism

1. सConcerned Project Proponent/Architect/ Land Surveyors shall submit online self- certification complying on said guidelines on weekly basis.
2. 2) BMC's Auto DCR portal will be provided with separate tab to submit the progress of Dust Mitigation Measures of site along with photos/videos.

5.7 Actions for Non-Compliance

1. On failure of compliance, Warning Letter to be issued to the project proponent for rectification/compliance within a week.
2. Pursuant to the warning letter, if the project proponent fails to comply then further penal action as per provisions of MMC/MRTP Act including issuing stop work notice shall be initiated.

6. Control of Air Pollution from Road and Bridge Construction

6.1 Inventory of Road and Bridge Construction Works

The ward wise template will include information related to number of ongoing construction/demolitions works of Road and Bridge Construction Works such as- Major Roads, Minor Roads, Flyovers, Bridges, Rail over Bridges (RoBs), Foot over Bridges (FoBs).

Ongoing construction/demolitions of	Name	Location	Number	Details (in Km.)	Remarks
Major Roads					
Minor Roads					
Flyovers					
Bridges					
Rail over Bridges (RoBs)					
Foot over Bridges (FoBs)					

6.2 Actions to Mitigate Air Pollution

These guidelines are mandatorily to be undertaken by all the ongoing and proposed Road Construction Works.

6.2.1 Guidelines for Road and Bridge Construction Works such as Major Roads, Minor Roads, Flyovers, Bridges, Rail over Bridges (RoBs), Foot over Bridges (FoBs)-

Phase	Environmental Guidelines for Prevention and Control of Dust
Trenching	1) Before the start of the excavation or trenching work, continuous metal barricades shall be provided around the work site. Tarpaulin/Green Cloth/Jute Sheet to be used to cover the open area of metal barricade.
Excavation	1) During the start of the Excavation, soil strata or roads shall be suitably watered/water sprinkled from time to time. 2) Water Fogging should be carried out during the Excavation, Loading and Unloading of material. 3) C and D waste generated within the premises / site of work is transported to the designated unloading site as per the BMC approved C an d D Waste Management Plan.
Storageof Material	1) Sand, Construction Materials and Debris of any kind and quantity should be stored in the demarcated/dedicated area, properly barricaded and fully covered/enclosed/protected with tarpaulin. 2) All Debris generated shall be removed within 24 hrs. of generation.
Construction	1) Construction activity, loading and unloading of material shall be carried out properly to avoid emission and spillage out of the barricade. 2) Water Sprinkling should be carried out during construction activity, material handling operations, loading as well as unloading of material.
Cement Concrete Wearing Course	1) Mandatorily Use of water during the concrete road joint cutting.
Transportation (Vehicles carrying construction materialand construction debris)	1) All vehicles should be thoroughly cleaned after unloading of material. 2) All vehicles carrying material should be fully covered and protected so as to ensure dust from construction material or debris does not become air-borne during transportation. 3) All vehicles carrying material should mandatorily obtain Pollution under Control Certificate (PUC) and shall produce it as and when asked. 4) All vehicles carrying material should be loaded in proper manner to avoid spillage and overloading.

Phase	Environmental Guidelines for Prevention and Control of Dust
Others	1) Brushing, Brooming and Sweeping of road work as well as road side parallel to metal barricade should be undertaken. 2) Mandatorily use of Personal Protective Equipment (PPE)- Mask, Goggles etc. 3) Complete Ban on use of New/ Discarded Wood and/or Wood Products by construction workers, security guards etc. as a cooking fuel or bonfires to prevent open burning. 4) Discarded Wood and/or Wood Products from Construction and Demolition Activity to be disposed off in scientific manner to avoid the open burning.

6.3 Categorization of Road Works Projects

Based on road width, the Road Works Projects are categorized into

Sr. No.	Category of Road Works Project	Width
1)	Major Road	>9 meters
2)	Minor Road	< 9 meters

6.4 Checklist on Actions

Based on the above environmental guidelines, the checklist will be prepared by concerned department/ward.

6.5 Enforcement Mechanism

1. The above guidelines will be immediately circulated to all the Contractors for implementation.
2. The concerned contractors shall be responsible to comply with the said guidelines.
3. The guidelines will also be circulated for enforcement to other departments such as,

- Special Planning Authorities such as

  Maharashtra Housing and Area Development Authority (MHADA), Maharashtra Industrial Development Corporation (MIDC), Mumbai Metropolitan Region Development Authority (MMRDA), Mumbai Port Trust (MPT), Maharashtra State Road Development Corporation (MSRDC) and Slum Rehabilitation Area (SRA).

1. Other Government Departments such as Airport Authority of India (AAI), Indian Defence, Mumbai Maritime Board (MMB), Public Works Department (PWD), Railways and Maharashtra Forest Department.

6.6 Monitoring Mechanism

Concerned contractor shall submit self- certification complying on said guidelines on weekly basis to the concerned Department's Deputy Chief Engineer.

6.7 Actions for Non-Compliance

1. On failure of compliance, Warning Letter to be issued to the contractor for rectification/compliance.
2. Pursuant to the warning letter, if the contractor fails to comply or shows negligence towards adoption and enforcement of guidelines then further stringent action including penal actions as per contract conditions will be initiated.

7. Control of Air Pollution from Urban and Civic Infrastructure

7.1 Inventory of Urban and Civic Infrastructure Projects

The ward wise template will include information related to number of ongoing construction/demolitions works of-

A) Urban Infrastructure such as Metro, Mono, Projects of MMRDA, MSRDC, PWD, Railway Construction Projects etc.

B) Civic Infrastructure Projects of BMC's Departments- Hydraulic Engineer (H.E.), Water Supply Projects (W.S.P.), Sewerage Operations (S.O.), Sewerage Projects (S.P.), Storm Water Drains (S.W.D.), Municipal Sewage Disposal Projects (M.S.D.P.), Mechanical and Electrical (MandE), Coastal Road etc.

Ongoing construction/demolitions of	Name	Locations	Number	Details (in Km.)	Number of RMC Plant	Number of Casting Yard
Metro Projects						
Mono Projects						
UrbanInfrastructure Projects- MMRDA, MSRDC, PWD etc.						
Railway Construction Projects						
Civic Infrastructure Projects- HE, WSP, SO, SP, SWD, MSDP, MandE, Coastal Road etc.						
Others						

7.2 Actions to Mitigate Air Pollution

These guidelines are mandatorily to be undertaken by all the ongoing and proposed Road Construction Works.

7.2.1 Guidelines for

i) Urban Infrastructure such as Metro, Mono, Projects of MMRDA, MSRDC, PWD, Railway Construction Projects etc.

ii) Civic Infrastructure Projects of BMC's Departments such as Hydraulic Engineer (H.E.), Water Supply Projects (W.S.P.), Sewerage Operations (S.O.), Sewerage Projects (S.P.), Storm Water Drains (S.W.D.), Municipal Sewage Disposal Projects (M.S.D.P.), Mechanical and Electrical (MandE), Coastal Road etc.

Phase	Environmental Guidelines for Prevention and Control of Dust
Demolition Work	
Demolition of existing structure	1) Erection of Tin/Metal Sheet or Metal Barricade around the periphery of entire structure. 2) Tarpaulin/Green Cloth/Jute Sheet to be used covering an area under demolition structure. Regular Cleaning of Tarpaulin or Jute Sheet to be undertaken. 3) Avoid on-site Crushing and Hammering of Demolition Material. 4) Water Sprinkling shall be continuously carried out so that the Debris shall remain in wet condition. 5) Water Fogging should be carried out during the Excavation and Loading and Unloading of material. 6) C and D waste generated within the premises / site of work is transported to the designated unloading site strictly as per the BMC approved C and D Waste Management Plan.
Construction Works	
During Construction	1) Erection of Tin/Metal Sheet or Metal Barricade around the periphery of structure. 2) Tarpaulin/Green Cloth/Jute Sheet to be used to cover the structure and Regular Cleaning of Tarpaulin or Jute Sheet to be undertaken.
Trenching and Excavation	1) During the start of the Excavation, soil strata or surface shall be suitably watered/water sprinkled from time to time. 2) Water Fogging should be carried out during the Excavation and Loading and Unloading of material.
Storage of Construction and Demolition Material	1) Loose Soil, Sand, Construction Materials and Debris of any kind and quantity should be stored in the demarcated/dedicated area, properly barricaded and fully covered/enclosed/protected with tarpaulin. 2) Complete Ban on dumping of Construction Material and Debris on Public Roads, Footpaths, Pavements and Open Area. 3) Appropriate dust extraction system with appropriate Air Pollution Control Technology to be provided, if required.

Phase	Environmental Guidelines for Prevention and Control of Dust
Construction Works	
Construction and Super Structure Construction	1) Chutes, Skips and Transfer Point used for dropping/transfer of material shall be enclosed and should properly operate and maintain to avoid emission and spillage out of the barricade. 2) Water Sprinkling and Water Fogging should be carried out during construction and super structure construction activity, material handling operations, loading as well as unloading of material. 3) Grinding, cutting, drilling, sawing and trimming should be carried out in enclosed area and Water Sprinkling and Water Fogging to be used. 4) Mixing and manual batching of concrete at the site should be avoided. However, in unavoidable circumstances, it should be done in an enclosed/confined area. 5) Mixing of materials for plaster should be undertaken in enclosed/confined area.
Transportation (Vehicles carrying construction materialand construction debris and Other Vehicles)	1) Inside the project premises, vehicle movement should be slow and should be carried out only on fixed route. The fixed route should be paved or hard top and regularly sprinkled with water. 2) All vehicles should be thoroughly cleaned after unloading of material. 3) All vehicles carrying material should be fully covered and protected so as to ensure dust from construction material or debris does not become air-borne during transportation. 4) All vehicles carrying material should mandatorily obtain Pollution under Control Certificate (PUC) and shall produce it as and when asked. 5) All vehicles carrying material should be loaded in proper manner to avoid spillage and overloading. 6) After loading and unloading of material, two level tyre washing facility shall be provided at all exit points. The waste water generated shall be collected and treated/reused in construction process before disposal. 7) C and D waste generated within the premises / site of work is transported to the designated unloading site strictly as per the BMC approved C and D Waste Management Plan.
Others	1) Only after mild water sprinkling- Brushing, Brooming and Sweeping of work area as well as road side parallel to metal sheet/barricade should be undertaken on daily basis. Daily Cleaning to be carried out at all Entry and Exit of Gate and Nearby Roads for removal of Dust. If possible, vacuum sweeping can be carried out at Dust Laden areas/routes. 2) Other unpaved surfaces, areas with loose soil should be adequately water sprinkled. 3) Use of Green Walls, Screens, Other Vegetation Barriers and any other innovative dust minimizing technologies. 4) (if installed) to be compliant with CPCB/MPCB Standards. If possible, Temporary Power Supply connections to be obtained. 5) Mandatorily use of Personal Protective Equipment (PPE)- Mask, Goggles etc. 6) All Project attracting Environmental Clearance shall carry out Third Party Ambient Air Monitoring every fortnightly from NABL / MoEF and CC Laboratory. 7) Complete Ban on use of New/ Discarded Wood and/or Wood Products by construction workers, security guards etc. as a cooking fuel or bonfires to prevent open burning. 8) Discarded Wood and/or Wood Products from Construction and Demolition Activity to be disposed off in scientific manner to avoid the open burning.

7.2.2 Ready-Mix Concrete (RMC) Batching Plants

Ready-Mix Concrete (RMC) Batching Plants engaged for the construction of project have to obtain the Maharashtra Pollution Control Board (MPCB) Consent to Establish and Operate and have to comply to the 'Guidelines for sitting criteria of Ready-Mix Concrete (RMC) plant' published by Notification vide No. MPCB/AS(T)/TB/B-436 dated 7th November 2016.

(https://www.mpcb.gov.in/sites/default/files/standing_orders/RMC_Gazette_circular.p df)

7.2.3 Casting Yard Plants

Casting Yard Plants engaged for the construction of project have to obtain the Maharashtra Pollution Control Board (MPCB) Consent to Establish and Operate and have to comply with the Environmental Clearance and Consent Conditions.

7.3 Checklist on Actions

Based on the above environmental guidelines, the checklist will be prepared by concerned department/ward.

7.4 Enforcement Mechanism

7.4.1 For Urban Infrastructure Projects:

- The above guidelines will be immediately circulated to all the Agencies for implementation.
- The concerned agencies shall be responsible to comply with the said guidelines.

7.4.2 For Civic Infrastructure Projects (HE, WSP, SO, SP, SWD, MSDP, MandE, Coastal Road etc.) of BMC:

- The above guidelines will be immediately circulated to all the Contractors for implementation.
- The concerned contractors shall be responsible to comply with the said guidelines.

7.5 Monitoring Mechanism

7.5.1 For Urban Infrastructure Projects:

1. Maharashtra Pollution Control Board (MPCB) on weekly basis to monitor the Environmental Clearance and Consent Conditions for Urban and Civic Infrastructure Projects.

For Civic Infrastructure Projects (HE, WSP, SO, SP, SWD, MSDP, MandE, Coastal Road etc.) of BMC:

1. Concerned contractor shall submit self- certification complying on said guidelines on weekly basis to the concerned Department's Deputy Chief Engineer.

7.6 Actions for Non-Compliance

7.6.1 For Urban Infrastructure Projects:

1. On failure of compliance, Maharashtra Pollution Control Board (MPCB) will take legal action as per the provision of Water Act, 1974, Air Act, 1984 and Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 and as per the MPCB's Enforcement Policy, 2016.

7.6.2For Civic Infrastructure Projects (HE, WSP, SO, SP, SWD, MSDP, MandE, Coastal Road etc.) of BMC:

1. On failure of compliance, Warning Letter to be issued to the contractor for rectification/compliance.
2. Pursuant to the warning letter, if the contractor fails to comply or shows negligence towards adoption and enforcement of guidelines then further stringent action including penal actions as per contract conditions will be initiated.

8. Control of Road Dust Resuspension

8.1 Road Improvement and Maintenance

8.1.1 Actions to Mitigate Air Pollution from:

Improvement of Road Infrastructure and Regular Maintenance of Roads for 100% pavement and pothole free roads is effective way to prevent and control Resuspension of Road Dust. It is suggested to undertake below mentioned immediate and long-term actions.

	Action to be Taken
Immediate Actions	1) Identify Major and Minor Roads for Bad Patches, Potholes, Unpaved Roads. 2) Road Repairs works to be undertaken for improvement of Bad Patches. 3) Filling of Potholes on all roads and special emphasis to be given for Important Roads, Major Roads and Minor Roads with high vehicular traffic movement. 4) Paving of Unpaved Roads Patches. 5) Surfacing/Blacktopping on trench patch.
Long-Term Actions	1) Undertake Road Widening Works for Decongestion of Road Traffic. 2) Removal of obstacles on roads in consultation with Traffic Police to remove traffic bottleneck for smooth vehicle movement. 3) Conducting audit of Traffic Intersection and if required install Traffic Signals in co-ordination with Traffic Police. 4) Intelligent Traffic Management System (ITMS) covering all traffic signals.

8.1.2 Checklist on Actions

Based on the above actions, the checklist will be prepared by concerned department/ward.

8.1.3 Enforcement Mechanism

1. The above actions will be circulated to all the Contractors for implementation.
2. The concerned contractors shall be responsible to comply with the said actions.

8.1.4 Monitoring Mechanism

1. Concerned contractor shall submit self- certification complying on said actions on weekly basis to the concerned Department's Deputy Chief Engineer.

8.1.5 Actions for Non-Compliance

1. On failure of compliance, Warning Letter to be issued to the contractor for rectification/compliance.
2. Pursuant to the warning letter, if the contractor fails to comply or shows negligence towards adoption and enforcement of actions then further stringent action including penal actions as per contract conditions will be initiated.

8.2 Road Sweeping and Road Cleaning

8.2.1 Inventory for Road Sweeping and Cleaning

The ward wise template will include information related to Sweeping and Cleaning of

	Name	Length (in Km.)	Sweeping Type	
			Manual (in Km.)	Operational Mechanical Power Sweeping (MPS) (in Km.) and No. of MPS deployed/in operations
Major Roads				
Minor Roads				

8.2.2 Actions to Mitigate Air Pollution

Due to large scale construction and infrastructure work and its transportation, frequency of dust generation on roads has been increased. To control this, it is suggested to undertake below mentioned immediate and long-term actions.

	Actions to be undertaken
Immediate Actions	1) Ward-wise special inspection drive to identify High and Frequent Dust Laden Major and Minor Roads. 2) Special drive to be undertaken for Dust Scrapping, Road Brushing, Sweeping and Cleaning of all Public Roads including Highways and special focusing on High and Frequent Dust Laden Major and Minor Roads. 3) After Road Brushing and Sweeping, Sprinkling of Water during nights to be carried out. 4) Use of Water Foggers during the day time for control of Dust.
Long-Term Actions	1) Assessment of City's requirement for Mechanical Sweepers and Procurement as per the requirement. 2) Preference to be given to Regenerative Air Sweeping Machines and Vacuum Power Sweeping Machines over Power Sweepers. 3) Use of Vehicle Mounted Water Sprinkling Machine and Vehicle Mounted Water Fogging Machine after Road Scrapping, Brushing and Sweeping.

8.2.3 Checklist on Actions

Based on the above actions, the checklist will be prepared by concerned department/ward.

8.2.4 Enforcement Mechanism

1. The above actions will be circulated to the department/contractor for implementation.
2. The concerned department/contractor shall be responsible to comply with the said actions.

8.2.5 Monitoring Mechanism

1. Concerned contractors shall submit self- certification complying on said actions on weekly basis to the concerned Assistant Engineer (SWM).

8.2.6 Actions for Non-Compliance

1. On failure of compliance, Warning Letter to be issued to the contractor for rectification/compliance.
2. Pursuant to the warning letter, if the contractor fails to comply or shows negligence towards adoption and enforcement of actions then further stringent action including penal actions as per contract conditions will be initiated.

9. Control of Air Pollution from Open Burning

9.1 Inventory for Open burning of Solid Waste/Garbage and Other Waste

The ward wise template will include information related to Solid Waste Generation, Collection and Open Burning Locations

A) Open Burning Solid Waste/Garbage and Other Waste		
Name of Location	**Type of Waste**	**Tentative Quantity (in MT)**
	a) Solid Waste/Garbage, b) Horticulture/Garden Waste, c) Plastic Waste, d) E Waste, e) Others.	

9.2 Actions to Mitigate Air Pollution

During the discussion, it is highlighted that Burning of- Solid Waste/Garbage, Garden and Horticulture Waste, Plastic Waste, E-Waste in the form of Wire etc. significantly contribute to the rising Air Pollution in Mumbai City. To control this, it is suggested to undertake below mentioned immediate and long-term actions.

	Actions to be undertaken
Immediate Actions	1) 100% Collection of Solid Waste/Garbage by BMC and transfer to Dumping Site. Special emphasis in Slums Areas etc. where sizeable number of Littering (open dumping) is carried out. 2) Wardwise special inspection drive to identify the Open Burning Spots. 3) Wardwise special cleanliness drive to immediately remove Littered (open dumped) Solid Waste/Garbage, Garden andHorticulture Waste, Plastic Waste, E-Waste etc. 4) Deployment of Nuisance Detectors (N.D.) for taking action and penalising the defaulters (involved in Littering, Dumping and disposal by burning) as per Greater Mumbai Cleanliness and Sanitation Bye-Laws 2006.
Long-Term Actions	1) 100 % Collection of Solid Waste/Garbage by BMC and transfer to Dumping Site. 2) Inspection Calendar to regularly check the vulnerable spots for control of Littered (open dumped) and Open Burning of Solid Waste/Garbage, Garden and Horticulture Waste, Plastic Waste, E-Waste etc. 3) Increase in penalty fine of acts under Greater Mumbai Cleanliness and Sanitation Bye-Laws. 4) Public Awareness and Public Outreach Programs to be carried out. 5) Google Mapping of Existing Solid Waste Collection Centres, Dry Waste Segregation Centres, Horticulture Waste Composting facility so that waste will be channelized to facility. 6) 100 % scientific treatment of waste that is generated. 7) 100 % treatment of Legacy Waste to prevent spontaneous fire. 8) Promotion of Reduce, Reuse and Recycling to lower down the waste generation.

9.3 Checklist on Actions

Based on the above actions, the checklist will be prepared by concerned department/ward.

9.4 Enforcement Mechanism

1. The above actions will be circulated to the Contractors for implementation.
2. The concerned contractors shall be responsible to comply with the said actions.

9.5 Monitoring Mechanism

1. Concerned contractor shall submit self- certification complying on said actions on weekly basis to the Ward Assistant Engineer (SWM).

9.6 Actions for Non-Compliance

1. On failure of compliance, Warning Letter to be issued to the contractor for rectification/compliance.
2. 2. Pursuant to the warning letter, if the contractor fails to comply or shows negligence towards adoption and enforcement of actions then further stringent action including penal actions as per contract conditions will be initiated.

10. Control of Air Pollution from Unclean Fuel

10.1 Inventory of Fuel Usage

The ward wise template will include information on -

Fuel usage by Hotels, Restaurants, Dhabas, Bakeries, and Other Establishments

	Total Number	Name	Location	Coal or wood charcoal fired Tandoor, Specify	Daily Quantity of Coal or Wood Charcoal used (in Kg.)	Type of Cooking Fuel Used	Daily Quantity of Fuel used (in Kg./ Ltr.)	Details of channelization or Control system provided for Emission (Yes/No and Details)	Chimney / Stack Height (in mtr.)
Hotels									
Restaurants									
Banquet Halls									
Dhabas									
Bakeries									
Eateries									
Eating Stall on Street									

10.2 Actions to Mitigate Air Pollution

Hotels, restaurants, etc. use large amount of coal and other fuel mixtures. Coal is one of the largest contributors of PM 10. Other unclean fuel usage in hotels, restaurants, etc. also adds to Air Pollution. To control this, it is suggested to undertake below mentioned immediate actions.

	Actions to be undertaken
Immediate Actions	1) Special Drive to be undertaken to identify the Hotels, Restaurants, Banquet Halls etc. using unclean fuel as well as using coal to fire Tandoor. 2) Immediate directions to be given to convert the existing unclean fuel to cleaner fuel.

10.3 Checklist on Actions

Based on the above actions, the checklist will be issued to Ward Level Task Force.

10.4 Enforcement Mechanism

1. The above actions will be circulated to the concerned departments, owners and operators of Hotels, Restaurants, Dhabas, Bakeries, and Other Establishments for implementation.
2. The concerned departments, owners and operators shall be responsible to comply with the said actions.

10.5 Monitoring Mechanism

Ward Level Task Force in co-ordination with the concerned departments shall visit to Hotels, Restaurants, Dhabas, Bakeries, and Other Establishments to monitor the compliance.

10.6 Actions for Non-Compliance

1. On failure of compliance, Warning Letter will be issued to the establishments for rectification/compliance.
2. Pursuant to the warning letter, if the establishments fail to comply or shows negligence towards adoption and enforcement of actions then further stringent action will be initiated.

11. Control of Air Pollutions from Crematoria

11.1 Inventory of Crematoriums

The template will include ward wise information on

	Total Cremation Pyre and furance	Number of Wood Pyre Set (Conventional)	Pyre set		Type of Air Pollution Control System (APCS) Provided	Number of Eco-friendly Pyre Set	Number of PNG Cremation System (With APC)	Number of Electric Cremation System (With	Chimney / Stack Height (in Mtr.)
			With APC	Without APC					
Name and Location of Crematorium and details of Cremation Facility									

11.2 Actions to Mitigate Air Pollution

Massive piles of firewood are burnt in the cremation process. This process generates various pollutants in large number. In Mumbai, these crematoriums are in residential areas and thus, it is essential to control the emission from Crematoriums. The below actions can be undertaken to control the emission.

	Actions to be undertaken
Immediate Actions	1)As all crematoriums in Mumbai have more than 01 pyre/furnace, the Wood Pyre Cremation not having Air Pollution Control System (APCS) should be avoided for usage (if possible). Instead, wood pyre crematoria having APCS or Electric/PNG based crematoriums shall be preferred.
	2) Immediate assessment of all Crematoriums for working and adequacy of Air Pollution Control System (APCS) to be undertaken. If the APCS working found to be inadequate, immediate repairing/refurbishment works to be undertaken.
	3) Public Awareness Posters to be placed on entry gate of crematoriums to motivate citizens to use the Eco-friendly pyre/ Electric/PNG based furnace crematoriums instead of wood pyre crematorium.
Long-Term Actions	1) Target based conversion or new installation of PNG based furnace crematoriums.
	2) Advanced Control System should be adopted in place of Conventional APC system

11.3 Checklist on Actions

Based on the above actions, the checklist will be prepared by concerned department/ward.

11.4 Enforcement Mechanisam

1. Pursuant to the warning letter, if the contractor fails to comply or shows negligence towards adoption and enforcement of actions then further stringent action including penal actions as per contract conditions will be initiated.

11.5 Monitoring Mechanism

1. Ward Level Task Force in co-ordination with the concerned department shall visit to the crematoriums to monitor the compliance.

11.6 Actions for Non-Compliance

1. On failure of compliance, Warning Letter to be issued to the contractor for rectification/compliance.
2. If the implementing agency fails to follow the guidelines and instructions proposed in the project and does not ensure proper implementation, and if such non-compliance is observed, then appropriate departmental action as per the rules will be initiated against the responsible party.

12. Control of Industrial Air Pollution

12.1 Inventory of Industries

The template will include ward wise information on

	Name	Location	Engagement for Government or Private or Both	Quantity
RMC Batching Plant- Commercial				
RMC Batching Plant- Captive Plant				
Casting Yard				
Hot Mix Plant				

Categoryof Industry	Scale of Industry	Total Number	Number of Air Polluting Industries/In dust rise with Emissions	Details of Fuels Used
Red	Large			
	Medium			
	Small			
Orange	Large			
	Medium			
	Small			
Green	Large			
	Medium			
	Small			

12.2 Actions to Mitigate Air Pollution

Mumbai City has many large-scale industries such as Refineries, Thermal Power Plant, Fertilizer, Storage of Chemicals, Automobile industries etc. Mumbai being a financial capital of India also houses many medium- and small-scale industries. These industrial operations are a significant cause of pollutants. For Control of Air Pollution from Industries actions to be undertaken includes-

	Actions to be undertaken
Immediate Actions	1) Inspection Drive to be carried out by Maharashtra Pollution Control Board (MPCB) at all the RMC Batching Plant- Commercial and Captive, Casting Yard Plants, Hot Mix Asphalt Plant to verify the compliance including the Air Pollution Control Measures as per the Consent Conditions. 2) Issue of Direction Letters to Building and Construction Projects and Infrastructure Projects for compliance of Air Pollution Control Measures as per Environmental Clearance and Consent Conditions. 3) Issue of Direction Letters to all other Air Polluting Industries for compliance of Consent Conditions. 4) Enforcement of Action Plan for Large Industries. 5) Petrochemical Industries to be directed for fence monitoring of VOC's and their emission control. 6) Regular Audit of Stack Emission for QA/QC in Thermal Power Plant. 7) Surprise Visit to Industries for Air Sampling. 8) Actions against unauthorized industrial units.
Long-Term Actions	1) Issue of Advisories for promoting cleaner production in Industries. 2) Improved Combustion Technology in Industries.

12.3 Checklist on Actions

Based on the above actions, the checklist will be issued by Maharashtra Pollution Control Board (MPCB).

12.4 Enforcement Mechanism

1. The above actions will be circulated to all the Industries by Maharashtra Pollution Control Board (MPCB) for implementation.
2. The concerned industries shall be responsible to comply with the said actions.

12.5 Monitoring Mechanism

Maharashtra Pollution Control Board (MPCB) to monitor the Environmental Clearance and/or Consent Conditions.

12.6 Actions for Non-Compliance

On failure of compliance, Maharashtra Pollution Control Board (MPCB) will take legal action as per the provision of Water Act, 1974, Air Act, 1984 and Hazardous and Other Waste (Management and Trans boundary Movement) Rules, 2016 and as per the MPCB's Enforcement Policy, 2016.

13. Control of Vehicular Pollution

13.1 Inventory of Vehicles

The template will include ward wise information on

A) Total Numbers of Vehicle Registered (RTO-01, 02, 03 and 47) in FY 2020-21, FY 2021-22 and FY 2022-23						
B) Fuel Wise Details of Vehicles Registered and are on Roads till February 2023						
Vehicle Type	Petrol	Diesel	LPG	CNG	Electric	Others
2-W						
3-W (Rickshaws)						
3-W (Others)						
4-W						
Taxi (Metered)						
Taxi (Tourist Cab)						
Buses (Government)						
Buses (Private)						
School Buses						
Ambulances						
Trucks and Lorries						
Tankers						
Delivery Van (4-W)						
Tractors						
Arti. and Multi. Vehicle						
Others						
Total						
Total Vehicles Per 1000 Population						
C) Fuel Wise Details of Vehicles Registered in FY 2021-22						
Vehicle Type	Petrol	Diesel	LPG	CNG	Electric	Others
2-W						
3-W (Rickshaws)						
3-W (Others)						
4-W						
Taxi (Metered)						
Taxi (Tourist Cab)						
Buses (Government)						
Buses (Private)						
School Buses						
Ambulances						
Trucks and Lorries						
Tankers						
Delivery Van (4-W)						
Tractors						

Arti. and Multi. Vehicle						
Others						
Total						
Total Vehicles Per 1000 Population						
D) Fuel Wise Details of Vehicles Registered in FY 2022-23						
Vehicle Type	Petrol	Diesel	LPG	CNG	Electric	Others
2-W						
3-W (Rickshaws)						
3-W (Others)						
4-W						
Taxi (Metered)						
Taxi (Tourist Cab)						
Buses (Government)						
Buses (Private)						
School Buses						
Ambulances						
Trucks and Lorries						
Tankers						
Delivery Van (4-W)						
Tractors						
Arti. and Multi. Vehicle						
Others						
Total						
Total Vehicles Per 1000 Population						

E) Number of PUC Centres in Mumbai City?

F) Number and Location of Pay and Park Facility including Number of Vehicles that can be parked?

G) Number of Vehicles scrapped in FY 2022-23?

H) Number of existing private cars plying on roads that are older than 20 years?

I) Number of existing commercial vehicles plying on roads that are older than 15 years?

J) Number of Abandoned Vehicles removed in FY 2022-23?

K) Tentative Number of Abandoned Vehicles currently parked on Road

13.2 Actions to Mitigate Air Pollution

The rapid urbanization has resulted in a tremendous increase in the number of motor vehicles. As the number of vehicles continues to grow and the consequent congestion increases, vehicles are now becoming the main source of air pollution in urban India. For Control of Air Pollution from Vehicles actions to be undertaken includes-

	Actions to be undertaken
Immediate Actions	1) Deployment of additional staff on roads for checking of vehicles and vehicular traffic movement management.
	2) Launch extensive drive against polluting vehicles to ensure Strict actions against visibly polluting vehicles.
	3) Strict actions for parking of vehicles at non-designated parking areas.
	4) Regular checking of Vehicular Emission and Issue of Pollution under Control Certificate. Priority will be given to Vehicles carrying Construction and Demolition Material, Heavy Vehicles, Taxis and Rickshaws.
	5)Use of off-peak passenger travel time to move freight and Restriction of entry of heavy vehicles into cities during day time.
	6) Check overloading of trucks, lorries and vehicles carrying Construction and Demolition Material.
	7) Covering of Vehicles to be made mandatory for all type of vehicles carrying all type of Construction and Demolition Material.
	8) Removal of Abandoned Vehicles (Khatara Hatav Campaign) for decongestion of road traffic.
Long-Term Actions	1) Phasing out older vehicles as per vehicle scrappage policy.
	Traffic Decongestion Plan to be notified comprising Traffic Congestion Points and Decongestion Strategy.

13.3 Checklist on Actions

Based on the above actions, the checklist will be issued by Regional Transport Office (RTO) and Mumbai Traffic Police (MTP).

13.4 Enforcement Mechanism

1. The above actions will be given large scale publicity and advertisement.
2. These actions will be circulated to stakeholders by Regional Transport Office (RTO) and Mumbai Traffic Police (MTP) for implementation.

13.5 Monitoring Mechanism

Regional Transport Office (RTO) and Mumbai Traffic Police (MTP) shall carry out special drive by deploying additional staff to inspect the vehicles and monitor actions.

13.6 Actions for Non-Compliance

On failure of compliance, Regional Transport Office (RTO) and Mumbai Traffic Police (MTP) will take action as per the provision of Motor Vehicles Act.

14. Other Actions to Mitigate Air Pollution

14.1 Greening and Plantation

	Actions to be undertaken
Immediate Actions	1) Daily Watering to all the Plants, Trees, Plantation on Open Spaces, Traffic Corridors, Gardens.
	2) Daily Water Sprinkling on Recreational Grounds, Play Grounds and Open Spaces.
	3) Greening and Landscaping of all Major and Arterial Roads. Focus to be on stretches with high Dust and high vehicular movement.
	4) Extensive Tree Plantation focusing Traffic Corridor, Open Area etc.
	5) While filling of earth material and/or watering plants on traffic- divider, median and intersection, care must be taken to avoid soil Spillage.
	6) Complete Ban on storing loose garden soil on Public Roads, Footpaths, Pavements and Open Area.

a) Fountains

	Actions to be undertaken
Immediate and Long-Term Actions	1) Installation of Water Fountains at traffic intersection and chowks.

15. Capacity Building and Public Outreach Program

For effective implementation of air pollution mitigation plan, Sector specific Workshops on Capacity-Building programmes for all the concerned departments and stakeholders will be undertaken.

As per the guidelines of Ministry of Environment, Forest and Climate Change (MoEFandCC), Annual Program for 'Capacity Building and Outreach Programmes' will be prepared and activities will be undertaken.

In October 2022, Mission LiFE (Lifestyle for Environment) was launched to sensitise and educate the masses on LiFE actions which can promote sustainable living and help tackle climate change. It includes list of 75 individual LiFE actions across 7 categories to practice simple environment-friendly actions (LiFE actions) in their daily lives. Under Mission LiFE, Awareness Programs will be organised.

16. Environment and Lung Health Institute

Haze forms when weather conditions remain stagnant for a considerable length of time which leads to lingering of dust, smoke and other pollutants along the vertical profile of the city. In some cases, specific weather patterns can cause haze to form in areas somewhat far away from the origination point of the dust, smoke or pollutant particles. Though haze contains dust and smoke particles, however, in dense urban regions it also contains air pollutants such as sulphur dioxide, nitrogen dioxide, ground level ozone, organic aerosols, carbon monoxide and particulate matter. The fine particles that make up haze can go deep into the lungs, and in some cases, enter the bloodstream. Major health risk is posed by the PM2.5 which in haze conditions is not purely dust particles but secondary reacted particulate matters. This can penetrate right into the small air sacs in human lungs when inhaled. Its presence can aggravate lung disease, causing asthma attacks, acute bronchitis as also increase susceptibility to respiratory infections. Short- term exposures can lead to in people with heart disease and arrhythmias whereas Long- term will

result in reduced lung function and the development of chronic bronchitis including premature mortality.

Looking at the overall changing landscape of air pollution, environmental factors and climate change, major contributing factors for disease burden in city and similarly in many cities of Maharashtra, there is a need to consider an action plan. In near future, there is a possibility of increasing disease burden which need preventive and curative steps. Brihanmumbai Municipal Corporation (BMC) had established Environmental Pollution Research Centre (EPRC) at KEM Hospital few decades back, which worked towards understanding air pollution and health impacts. It is imperative that an Institute is created which will address the whole gamut of issues of health arising from Air Pollution, Environment and Climate Change.

17. Task Force

17.1 BMC's Ward Level Task Force

Ward Level '03' Task Force will be constituted comprising of below mentioned officers for implementation of Air Pollution Mitigation Action Plan.

Ward Level 01st Task Force will include	Ward Level 2nd Task Force will include	Ward Level 3rd Task Force will include
Assistant Engineer (B and F)	Assistant Engineer (SWM)	Assistant Engineer (Division MandE)
Assistant Engineer (B.P.)	Sub-Engineer (Maintenance)	Medical Officer of Health (MoH)
Sub-Engineer (R.E.)	Horticulture Assistant (Ward)	Sub-Engineer (Ward M and E)
***Oversee Chapter No. 5, 6, 7, 8.1**	***Oversee Chapter No. 8.2, 9, 14.1**	***Oversee Chapter No. 10, 11**

Objective of Ward Level Task Force

1. The Task Force will visit the Projects, Sites to inspect the compliance as per guidelines/actions within a week.
2. The Task Force will issue Warning Letter on 1st non-compliance.
3. The Task Force will again visit and inspect about the compliance mentioned in the Warning Letter. If non-compliance is again reported, Task Force will take penal action for 2nd non- compliance with the approval of the concerned Executive Engineer/MoH.
4. The Task Force will submit weekly action taken report to the concerned Assistant Commissioner.

17.2 Works by other Agencies and Departments

BMC's Ward Level Task Force mentioned in above para 17.1 shall be empowered to visit and inspect Construction/Projects by other agencies/departments such as MHADA, MIDC, MMRDA, MPT, MSRDC, SRA, AAI, MMB and PWD, Railways, Maharashtra Forest Department etc. and take necessary actions as mentioned in above para 17.1.

18. Institutional Mechanism

Brihanmumbai Municipal Corporation (BMC) is in process to form 'Climate Action Cell'. This cell will comprise of technical subject experts which will be posted at Ward Level and Head Office to co-ordinate and assist with various BMC's department for implementation of Actions for improvement of Air Quality under Mumbai City Air Action Plan and to execute the Mumbai Climate Action Plan (MCAP) for climate resilience and achievement of Net Zero Target.

BMC has also made budgetary provisions in the Budget Estimates of 2023-24 for control of Air Pollution.

19. Review

The enforcement and implementation of Guidelines and Actions will be reviewed by respective Assistant Commissioner on weekly basis.

Assistant Commissioner shall submit report in prescribed format to the Additional Municipal Commissioner (WS) on 5th and 20th Date of Every Month. If holiday falls on same date, the report shall be submitted on next working day.

20. Corrective Measures

Inventory Data and Action Taken Report (ATR) will be submitted on monthly basis for progress review and further corrective measures to-

- City Level Air Quality Monitoring Committee and
- Technical Advisory Committee.

21. References

1. Solid Waste Management Rules, 2016.
2. C&D Waste Management Rules, 2016.
3. Central Pollution Control Board (CPCB).

Circular on harmonization of classification of industrial sectors.

4. Maharashtra Pollution Control Board (MPCB).

Guidelines for citing criteria of Ready-Mix Concrete (RMC) plant, 2016.

5. Central Pollution Control Board (CPCB).

Guidelines on Environmental Management of C and D Wastes, March 2017.

6. Central Pollution Control Board (CPCB).

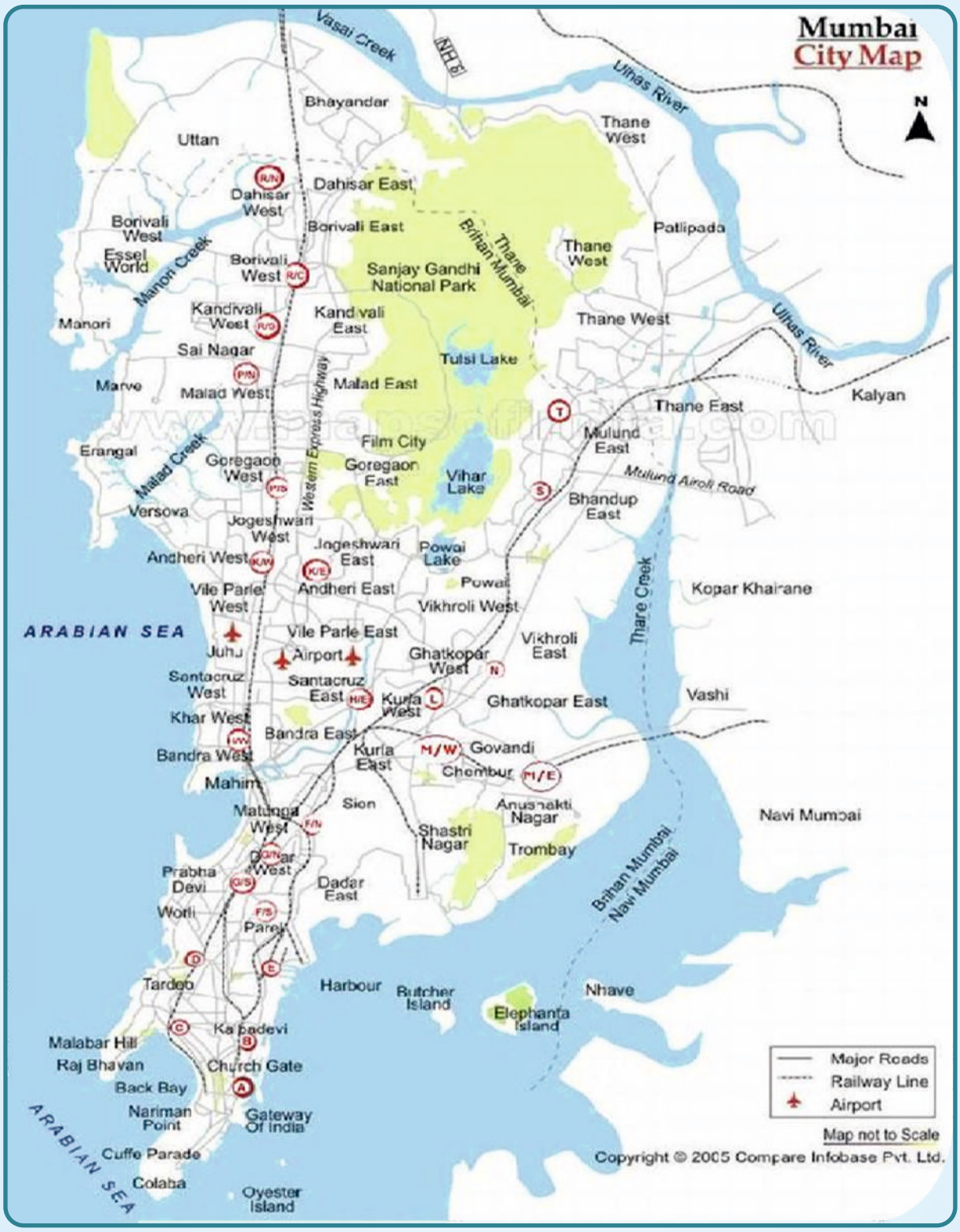
Guidelines on Dust Mitigation Measures, November 2017.

7. Hon. Supreme Court Order vide SLP (Civil) No. D23708/2017 dtd. 15.03.2018.
8. Central Pollution Control Board (CPCB), Maharashtra Pollution Control Board (MPCB).

Revised Action Plan for Control of Air Pollution in Non-Attainment Cities of Maharashtra- Mumbai City Action Plan, 2019.

9. Central Pollution Control Board (MPCB), Maharashtra Pollution Control Board (MPCB).

Graded Response Action Plan.



27 GUIDELINES FOR AIR POLLUTION MITIGATION IN MUMBAI

For control of Air Pollution level, the guidelines had been issued on 25.10.2023 by the Brihanmumbai Municipal Corporation due to large increase in construction, demolition and similar activities in the city. These guidelines are mandatory for all related stakeholders and must be followed strictly. Otherwise strict action can be taken by the Brihanmumbai Municipal Corporation.

To address the increasing air pollution and deteriorating air quality in Mumbai, the Brihanmumbai Municipal Corporation issued 'Revised 28- point Guidelines' on October 15, 2024. All Zonal Assistant Commissioner/Deputy Commissioner/all Assistant Commissioner /Chief Engender (DP)/Chief Engender (SWM) /concern Ward Officers and concerned department of State and Central Government is expected to strictly implement the Revised 28- point Guidelines

The guidelines are as follows:

1. All the project proponents to ensure that at least 35 feet high tin / metal sheets shall be erected around the periphery of construction projects having height more than 70 mtr.
2. All construction layouts having area more than l(one) acre shall have tin / metal sheet erected of height 35 feet at least around periphery of the construction project sites and for construction sites, less than 1 (one) acre, the tin / metal sheet height shall be 25 feet at least.
3. All the buildings under construction shall be compulsorily enclosed by green cloth /jute sheet / tarpaulin from all sides.
4. All the structures under demolition shall be covered with tarpaulin / green cloth / jute sheet from top to bottom. There shall be continuous sprinkling / spraying of water during the process of demolishing of the structure.
5. It shall be ensured that water fogging shall be carried out during loading and unloading of materials at the construction sites (use of stationary/ mobile anti- smog guns).
6. The water sprinkling shall be done on debris I earth material etc. which are prone to generate air borne particulate matters at all construction sites without fail.
7. All vehicles carrying construction materials shall be fully covered (i.e. from top and all sides) so that construction material or debris does not become airborne during transportation and the vehicle shall not be overloaded to avoid any spillage from the vehicle.
8. All construction sites shall install CCTV cameras along the periphery of their work sites to ensure that vehicles are plying after cleaning tyres and are not overloaded.
9. All construction sites to deploy sensor based air pollution monitors at work sites and act immediately on observing pollution levels exceeding the limit. This monitoring shall be made available for inspection to BMC authorities as and when demanded.

10. All the work sites shalr ensure that grinding, cutting, drilling, sawing and trimming work is carried out in enclosed area and water sprinkler / water fogging is continuously done while working to avoid escape of fugitive air.
11. All the construction sites shall ensure that C and D (Construction and Demolition) waste generated within the premises / site of work is transported to designated unloading site strictly as per BMC's C and, D waste Management plan. After unloading the debris, the vehicle shall be washed and cleaned thoroughly.
12. All vehicles carrying materials shall have valid PUC certificates and the same shall be produced as and when asked for by competent authorities.
13. AII the construction personnel / managers shall mandatorily wear personal protective equipment such as masks, goggles, helmets, etc.
14. All the BMC worksites like bridges and flyovers shall have barricading of 25 feets.
15. All the metro works above ground shall be covered with barricading of 25 feet height. The construction site shall be covered with tarpaulin / green cloth / jute sheet' the smog guns / water sprinklers shall be used during the construction work.
16. The mitigation measures suggested as above shall be mandatorily observed by other agencies like SRA, MHADA, MIDC, MSRDC, MMRDA, BPR, Airport Authority of India, Railways, Govt. or Semi Govt. authorities and private construction sites.
17. All Assistant Commissioners in charge of Wards shall arrange to deploy special squads to prevent illegal C and D dumping at late night.
18. AII Assistant. Commissioners in charge of Wards shall deploy squads for air pollution mitigation enforcement comprising of :-

    1. Two (Ward) engineers
    2. One Policeman
    3. One marshal
    4. Vehicle

    Each squad shall be headed by one senior officer from the ward. The formation and deployment of these squads at Ward level shall be done immediately. The number of squads Ward-wise shall be as follows:

    1. Smaller wards - 2 squads each ward
    2. Middle size wards - 4 squads each ward
    3. Larger size wards - 6 squads each ward.

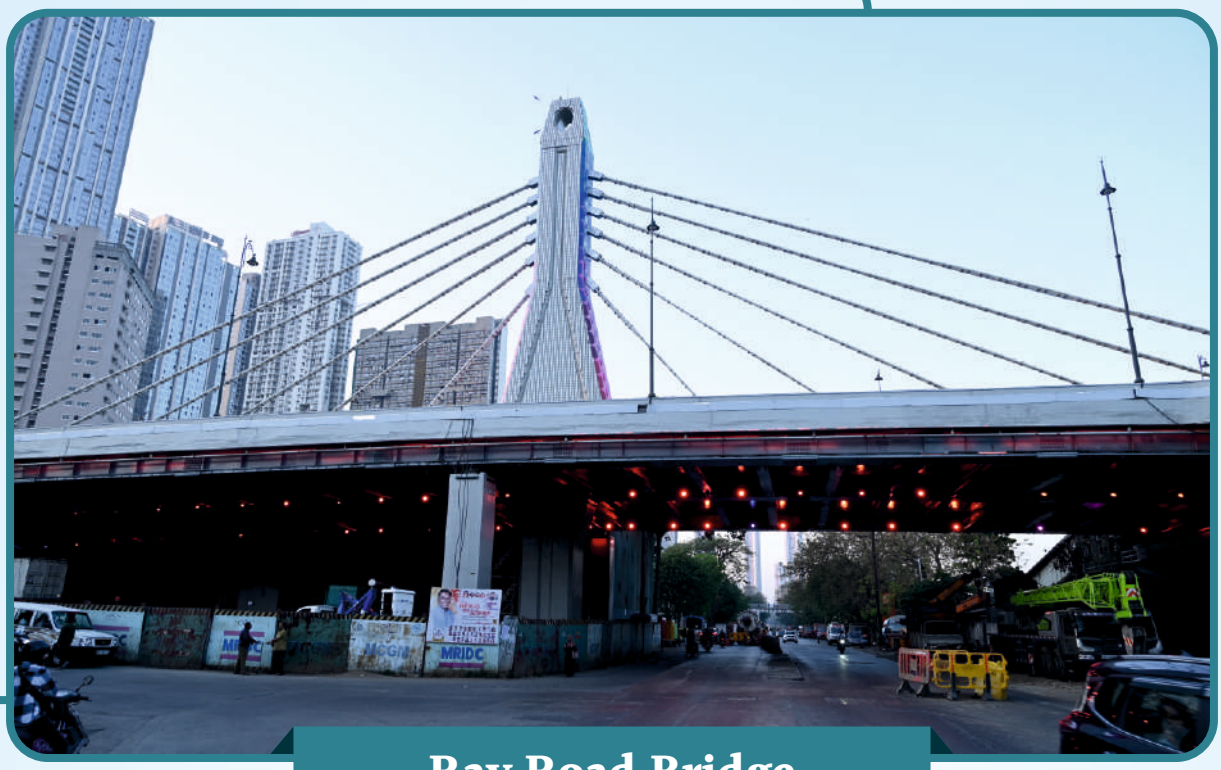
19. The enforcement squad shall visit the premises and video graph the worksite. If it is observed that the worksite is not adhering to above stated provisions, stringent action such as issue of Stop Work notice and or sealing of worksite shall be taken immediately.

20. The timeline for procurement of sprinklers shall be 15 days and for procurement of smog guns shall be 30 days from issuance of this circular. All the project proponent / contractors shall abide by the above timelines without fail.
21. The vehicles carrying construction material or C and D material, if found not adhering to above stated provisions, shall be seized and impounded.
22. The Transport Commissioner shall take action against overloading of vehicle, uncovered vehicles, vehicles spilling construction materials on roads and the heavy duty diesel vehicles which are more than 8 years old shall be strictly prohibited in Mumbai jurisdiction.
23. MPCB shall monitor the air pollution emitted from the industries such as BPCL, HPCL, RCF, Tata Power, industries in nearby MIDC area etc. daily for next one month and take appropriate action. The daily monitoring data shall be shared with AMC (City) and A.M.C. (W.S.).
24. All builders / Developers shall engage only those vehicles which possess vehicles tracking system installed on them'
25. The loose soil, sand, construction materials and debris of any kind and quantity shall be stored in demarcated / dedicated area and properly barricaded, fully covered / enclosed / protected with tarpaulins. It shall be ensured that there is no dumping of construction material and debris on public roads, footpaths' Pavements and Open area.
26. Vehicle tyre washing facility shall be provided at all exit points of construction sites. It shall be ensured that daily cleaning is carried out of major roads for removal of dust by using vacuum sweeping or water sprinkling, brushing' brooming and sweeping. This work may be outsourced to ensure wide and fast coverage of all major roads in one month's time.
27. There shall be complete ban on open burning anywhere in the geographical area under BMC, especially.
28. The BMC administration has noticed that the wood and similar fuel are being widely used to prepare a meal for workers living in the construction site. Such fuel can spread a lot of smoke as well as the safety issue arise. Considering this, the concerned developers should arrange the foods for workers in such places. So that they do not have to burn wood and similar matter as a fuel to make a meal and alternatively there would not be any smoke. As well as the location of the respective construction will remain safer.

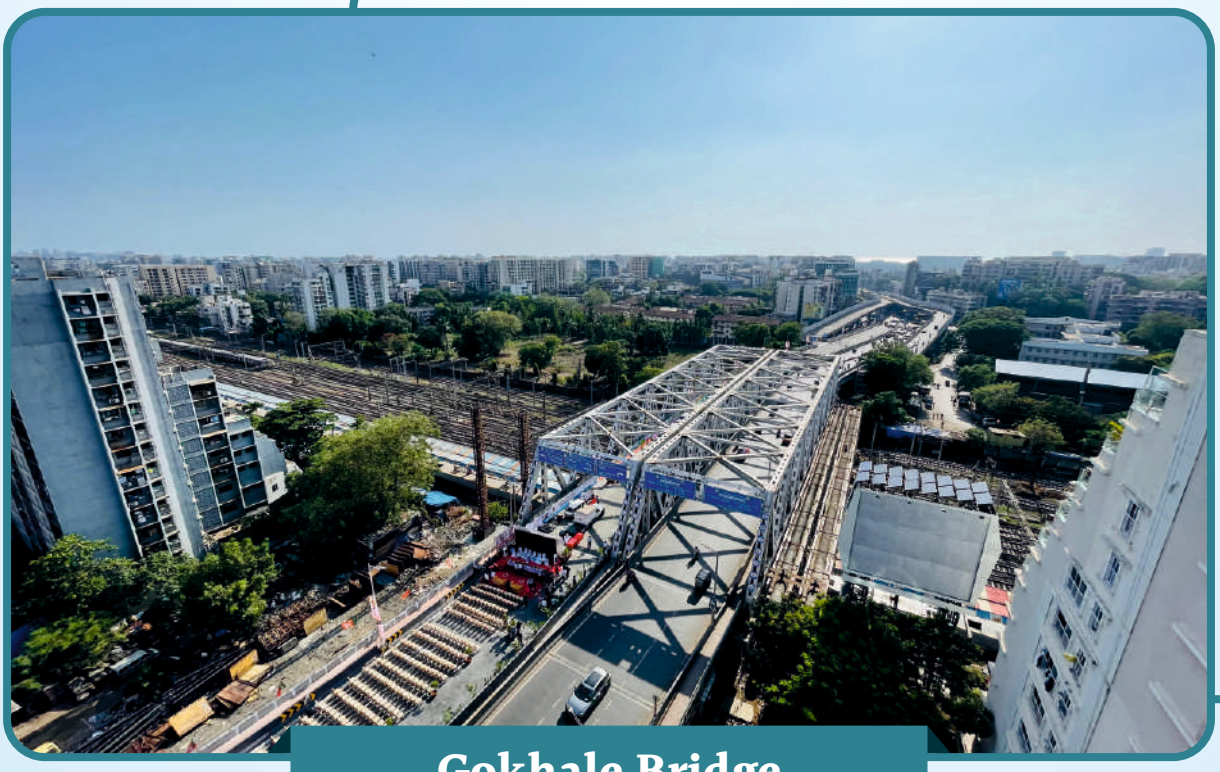
Salient Features of Environment Status Report

1. In year 2024-25, a total of 20044 trees are planted on municipal roads and available open spaces of which 6630 trees are planted by traditional method and 13414 by miyawaki method. Plantation of more than 5 lakh trees by Miyawaki method has been done till date.
2. In the year 2025-26, a target has been set to plant approximately 25000 trees along roadsides and other places within Brihanmumbai Municipal Corporation jurisdiction.
3. The treated water is stored in the Master Balancing Reservoirs (MBR) located near to treatment plants at Bhandup Complex within Mumbai and Yewai outside Mumbai. It is further distributed to 27 service reservoirs located throughout Mumbai City with water supply network of about 450 Kms this conveyance system remains charged for 24 hours and eliminates the chances of water contamination because of intrusion of ground water/sewage etc. There is 4000 M.L.D. water supplies to Mumbai.
4. From 8.05.2019 as per Development Plan 2034, the condition is binding to all developments having plot area 500 Sq. Mts. and more.
5. Under Jal Shakti Abhiyan Catch the Rain 2022, Rain Water Harvesting Cell of Brihanmumbai Municipal Corporation has implemented Awareness Campaign consisting of an exhibition of posters, advertisements in local daily Newspapers, display of banners etc. and save water messages published through local daily newspapers.
6. Since the Brihanmumbai Municipal Corporation is an important administrative mechanism for implementing Swachh Bharat Abhiyan, joint efforts are being made to maintain cleanliness in the city with the cooperation of the State and Central Governments.
7. Under Swachh Bharat Abhiyan 2.0 mainly objective include segregation of waste at household level, scientific treatment of old accumulated waste (legacy waste), Aspirational toilets, 100% sewage management collection / disposal / processing etc. Jointly carried out by Solid Waste Management Department of Brihanmumbai Municipal Corporation to achieve vision of 'Garbage Free' cities.
8. About 600 TPD of Deonar MSW will be processed scientifically and about 8 MW energy will be generated from this project.
9. The use and manufacturing of plastic carry bags below 50 microns is prohibited by law. Solid Waste Management Department has developed banned plastic collection and storage facilities for the convenience of citizens. Use of media for spreading awareness about active public participation in minimizing use of banned plastic is being done.
10. To promote electrical vehicles in Mumbai city, BEST Undertaking have installed private charging stations at 55 locations in Mumbai city and suburban for 3 wheelers, private cars, delivery Vans and Electric buses.

11. The Mumbai coastal road project (South) Project of 10.58 km from Princess Street Flyover to Worli End of Bandra Worli Sea Link is proposed. This road will provide several environmental friendly features to the city. The Mumbai Coastal Road Project will reduce the travel time, de congest existing roads.
12. In the year 2022-2023, the Air Quality Monitoring and Research Laboratory, Continuous Ambient Air Quality Monitoring Stations have been operational at 5 places in the Brihanmumbai Municipal Corporation jurisdiction, through which Air Quality Levels, Air Quality Index etc. Information is becoming available .
13. For control of Air Pollution level, the guidelines had been issued on dt. 25.10.2023 by the Brihanmumbai Municipal Corporation due to large increase in construction, demolition and similar activities in the city. These guidelines are mandatory for all related stakeholders and must be followed strictly. Otherwise strict action can be taken by the Brihanmumbai Municipal Corporation.
14. Citizens in case of emergency -quick and effective response ,condition with all agencies, speedy availability of information, incentives for preparedness at all levels , immediate assistance to the victims and constant alerting services available through the Disaster Management Department.



Ray Road Bridge



Gokhale Bridge

Coastal Road Drone View