

Initiatives against Air Pollution (PM₁₀)

International Standards PM₁₀ (WHO)

20 µg/m³ annual mean
50 µg/m³ 24-hour mean

European Standards PM₁₀ (EU Directive)

40 µg/m³ annual mean
50 µg/m³ 24-hour mean may not exceed more than 35 times a year

BiH		
Annual Standards: 40 µg/m ³ PM ₁₀ 24 hours Standard: 50 µg/m ³ PM ₁₀ , should not exceed more than 35 times a year		
Information threshold: 300 µg/m ³ PM ₁₀ Alarm threshold: 400 µg/m ³ PM ₁₀		
Emergency Measures	2017	<ul style="list-style-type: none"> • 1st level: Watering on streets in order to reduce particulate matter; Voluntary reducing of private car usage; every juristic entity (enterprises, industry and car owner) should be able to be more flexible in their working time in order to defuse/unload the public transport and traffic; cars with petrol (less than Euro 1) and diesel (less than Euro 3) will be prohibited to circulate (exception for vehicles: police, diplomatic, emergency vehicles, inspection, Ministry for Defense; public transport, public entities); Road 'Bašćaršija – Ilidža' will be prohibited for vehicles above 3.5 t (exception: trucks for food delivery, emergency vehicles, public entities); Reduce Warming (2°C less) for solid and oil heating facilities with more than 50 kW; for gas facilities 1 MW and lower reduction by 1°C; Waste burning is prohibited and can be reported under an Eco-phone 033/66 00 00 (fines 250-500 €); More controls will be installed. • 2nd level: Reduce Warming (3°C less) for solid and oil heating facilities with more than 50 kW; for gas facilities 1 MW and lower reduction by 2°C; more efficient traffic light control at the main road crossings in the city center; Construction work outside will be prohibited. • 3rd level: Maximum of public transport; no busses with less than Euro III; gas facilities 1 MW and lower reduction by 3°C; even-odd number plate scheme 7:00-24:00h (PM10 was over 400 µg/m³ in December 2017); no school; Alarm ends if weather forecast predicts better conditions
General Measures		-

Macedonia		
Information threshold: 50 µg/m ³ (on 5 consecutive days) PM ₁₀ Alarm threshold: 100 µg/m ³ (on 10 consecutive days) PM ₁₀		
Emergency Measures	2018	<u>Action Plan</u> <ul style="list-style-type: none"> • Days off from work for pregnant women, people over 60 years and people suffering from chronic asthma and related conditions • Free public transport, higher prices for parking in the city center
General Measures	2018	<u>Plan to tackle air pollution</u> → Government approved 1.8-million-dollar program <ul style="list-style-type: none"> • City encourages people to move away from polluting heating systems • Considering car scrappage schemes for older, more polluting cars.

Poland		
Annual Standards: 40 µg/m ³ PM ₁₀ 24 hours Standard: 50 µg/m ³ PM ₁₀ , should not exceed more than 35 times a year		
Information threshold: 200 µg/m ³ (Poland) / 150 µg/m ³ (Krakow) PM ₁₀ Alarm threshold: 300 µg/m ³ PM ₁₀		
Emergency Measures		-
General Measures	2018	<u>Initiative burning</u> <ul style="list-style-type: none"> • Initiative to wean people off burning coal or wood¹
	2018	<u>Anti-Smog Initiative</u> <ul style="list-style-type: none"> • Investment of 8.8 billion U.S dollars by 2028 to combat smog²
	2018	<u>Nation-wide thermos modernization</u> <ul style="list-style-type: none"> • Announcement nation-wide thermo-modernization program which would include better insulation and energy efficiency.³

¹ <https://www.nytimes.com/2018/04/22/world/europe/poland-pollution.html> (Retrieved 14.01.2019).

² <https://www.nytimes.com/2018/04/22/world/europe/poland-pollution.html> (Retrieved 14.01.2019).

³ <https://energytransition.org/2018/03/polish-coal-polish-smog-polish-chaos/> (Retrieved 14.01.2019).

Switzerland		
Annual Standards: 20 µg/m ³ PM10 24 hours Standard: 50 µg/m ³ PM ₁₀ , should not exceed more than once a year		
Information threshold: 75 µg/m ³ PM10 Alarm threshold: 100 µg/m ³ PM10		
Emergency Measures	2006 (2016)	<p>Information Threshold (>75 µg/m³ + forecast three days): Information about stress situation; Impact and personal behavioural recommendations; Recommendations for personal contributions, no measures.</p> <p>1st alert stage (>100 µg/m³ + forecast three days): Information on stress situation; Impact and personal behavioural recommendations; Recommendations for personal contributions; Additional regional or cantonal measures; Information about cancellation Measures: Speed limit on motorways down to 120 km/h for normal traffic; special truck speed limit down to 80 km/h on motorways and roads coupled with overtaking bans for trucks (max. eight days otherwise special permit required); Prohibition of the use of second solid material heater (boilers, ovens, etc.); Prohibition of any kind of outdoor fire.</p> <p>2nd alert stage (>150 µg/m³ + forecast three days): The measures of the first alert stage will stay into force. In plus, prohibition of the use of diesel-powered machinery, equipment, construction machines and vehicles without particulate filters.</p>
General Measures	1983	<p><u>Federal Law on Environmental Protection</u>⁴</p> <ul style="list-style-type: none"> • Continuous monitoring of air quality • Constant international comparison • Information of the population • Reduction of pollutant emissions through regulations and controls
	2014	<u>Implementation of Euro-6/VI standards for motor vehicles</u>
	2018	<p><u>Implementation limit value for PM_{2.5}</u>⁵ → annual mean value of 10 µg/m³</p>
		<p><u>Exp. General Measurements</u>⁶</p> <ul style="list-style-type: none"> • Federal regulations pollutant emissions from heating systems, industrial installations, motor vehicles, machinery and equipment, ships and rolling stock as well as for the quality of combustibles and heating fuels. • Heavy vehicle charge and the incentive taxon volatile organic compounds • Promotion of public transportation and expansion • Introduction of quality regulations for petrol and diesel

⁴ <https://www.admin.ch/opc/de/classified-compilation/19830267/index.html> (Retrieved 10.01.2019).

⁵ <https://feinstaub.ch/neuigkeiten> (Retrieved 10.01.2019).

⁶ <https://www.bafu.admin.ch/bafu/de/home/themen/luft/fachinformationen/massnahmen-zur-luftreinhaltung.html> (Retrieved 10.01.2019).

		<ul style="list-style-type: none"> • Limit values or quality regulations for the composition of heating oil, wood, gas and coal fuels • Emission control vehicles • Particular filters mandatory
		<p><u>Transport Policy (Exp. Zurich)</u>⁷</p> <p>Shift part of the performance of motorized passenger and freight transport to public transport or rail by:</p> <ul style="list-style-type: none"> • Taxation of road freight traffic • Compact spatial planning and traffic areas more attractive for pedestrians and cyclists • High Standard of public transport • Only new diesel buses and electric trolley buses • Municipal authorities use carpooling and car sharing services on business trips • Increase cycling: promotion, bicycle delivery service, subsidies for bike-to-work programs • Shorten of public parking supply, high parking fees • Traffic limits in the cities to 30 km 30 km/h

India		
Annual Standards: 60 µg/m ³ PM ₁₀ 24 hours Standard: 100 µg/m ³ PM ₁₀		
Emergency Measures	2015	State government of Delhi piloted a <u>congestion scheme to reduce the volume of traffic</u> ⁸ → Vehicles with odd and even number could enter the city on alternate days
	2018 (Oct.)	<u>Emergency Action Plan (New Delhi)</u> ⁹ <ul style="list-style-type: none"> • Stopping garbage burning • Enforcing all pollution control regulations in brick kilns and industries • Stopping use of diesel generator sets • Enhancing parking fees 3-4 times • Increasing frequency of metro and busses • Stopping entry of trucks into Delhi
	2018 (Nov.)	<u>Ten Day Clean Air Campaign</u> ¹⁰ (Delhi and 4 major NCR cities) <ul style="list-style-type: none"> • Ensure compliance through proactive monitoring by central teams will, with the support of local police

⁷ <http://www.sootfrecities.eu/sootfrecities.eu/public/city/zurich> (Retrieved 23.01.2019).

⁸ <https://www.who.int/bulletin/volumes/94/7/16-020716/en/> (Retrieved 10.01.2019).

⁹ <https://www.eco-business.com/news/indias-air-pollution-plan-is-a-disappointment/> (Retrieved 10.01.2019).

¹⁰ <https://www.livemint.com/Politics/334wShpHUVHPrRK6dwdvJM/10day-campaign-to-combat-air-pollution-as-Delhi-gasps-for-b.html> terms (Retrieved 10.01.2019).

		<ul style="list-style-type: none"> • Deployment of mobile air purifiers • Impound of overage diesel+petrol vehicles • Suspend the use of diesel generators • Warning concerning possible restriction of use of private vehicles • No entry of heavy and medium goods vehicle in the city center • Intensified checking polluting vehicles • Increase number of busses in the city center
General Measures	2006	Introduction by the government of <u>more stringent pollution tests</u> ¹¹
	2017	<p>India finalized a <u>National Clean Air Action Program (NCAP)</u>¹²</p> <p>→ drafted by India's Ministry of Environment, Forests and Climate Change</p> <p>→ Aims to cut pollution in the 102 worst affected cities by 20-30 percent by 2024¹³</p> <p>→ This is the first such action plan for all of India ¹⁴</p> <p>Some of the <u>concrete measures</u>:</p> <ul style="list-style-type: none"> • Nation-wide program of ambient air quality monitoring • Fix national ambient air quality standards • Introduction National Air Quality Index • Advanced vehicle emission and fuel quality standards • Voluntary fleet modernization and old-vehicle scrappage program • Introduction of a National Electric Mobility Mission Plan 2020 • Introducing gas an automotive fuel many cities • Introduction and enhancement of the metro-rail and bus-based public transport system • Electrification to reduce kerosene consumption for lighting • Introduction of an energy-efficiency labelling program for energy-intensive home appliances • Notifying new stringent standards for diesel generator sets for standby power generation • Extensive Plantation • Optimizing the use of existing power plants, phasing out older coal-based power plants and converting specific coal base power plants to natural gas • Promotion of Green and E-Mobility Exp. Government-run buses for public transport, private buses, and 3-wheelers to be converted to EV

¹¹ <https://www.livehindustan.com/Politics/k7CzkbPJ75uJVFaOjNMpSj/How-do-you-solve-Indias-air-pollution-problem.html> (Retrieved 10.01.2019).

¹² <http://envfor.nic.in/sites/default/files/press-releases/NCAP%20Report%20Full.pdf> (Retrieved 10.01.2019).

¹³ <https://www.businesstoday.in/current/economy-politics/india-launches-national-anti-pollution-program-but-experts-sceptical/story/308958.html> (Retrieved 11.01.2019).

¹⁴ <https://india.mongabay.com/2018/04/30/experts-feel-indias-action-plan-to-tackle-air-pollution-losing-wind-before-take-off/> (Retrieved 11.01.2019).

China		
Annual Standards: 40 µg/m ³ PM ₁₀ 24 hours Standard: 50 µg/m ³ PM ₁₀		
Emergency Measures	2013	<u>Heavy Air Pollution Contingency Plan¹⁵</u> → In action, when air quality index for <u>PM2.5</u> exceeds 300. <ul style="list-style-type: none"> • Kindergartens, primary and middle schools have to stop classes • 80% government-owned cars must be taken off the roads • Private cars only allowed to enter the city on alternate days according to ballot system of the plates numbers
	2017	<u>Winter smog battle Plan¹⁶</u> → From the ministry of environmental protection <ul style="list-style-type: none"> • Switching millions of households and industrial users to natural gas from coal for their heating and other needs • Mandated cuts in steel production by up to 50 percent
General Measures	2013	<u>Air Pollution Action Plan¹⁷</u> Most influential environmental policy of the past five years, helped to make significant improvements. The measures cut PM2.5 levels in Beijing by more than a quarter between 2012 and 2016. ¹⁸ 2013 was a key point for China in enacting air pollution measures. The government and the public both finally admitted to the severity of the problem. ¹⁹ <ul style="list-style-type: none"> • Reduction emission of multi-pollutants • Promotion of industry upgrades and restructuring • Acceleration of companies' technology upgrading • Acceleration of energy restructuring • Enforcement of energy-saving and environmental protection in market entrance requirements • Application of market-oriented instruments and environmental economic policies • Improvement of the legal framework, implementation and enforcement • Establishment of regional collaboration mechanisms • Establishment of monitoring, alerting and emergency response systems for air pollution episodes

¹⁵ <https://edition.cnn.com/2013/10/23/world/asia/china-beijing-smog-emergency-measures/index.html> (Retrieved 11.01.2019).

¹⁶ <https://archive.shine.cn/feature/ideal/Beijing-turned-corner-in-battle-against-pollution/shdaily.shtml> (Retrieved 11.01.2019).

¹⁷ <http://cleanairasia.org/node12066/> (Retrieved 11.01.2019).

¹⁸ <https://www.economist.com/the-economist-explains/2018/01/25/how-china-cut-its-air-pollution> (Retrieved 11.01.2019).

¹⁹ <http://www.globaltimes.cn/content/1077818.shtml> (Retrieved 11.01.2019).

		<ul style="list-style-type: none"> • Definition of responsibilities and engage with government, private sector and the public for environmental protection.
	2018	<p><u>Three-year Action Plan for Winning the Blue Sky War</u>²⁰</p> <p>The plan requires coal consumption to fall here by 2020, bans the small-scale burning of coal for heat in winter, and will see a full shake-up of polluting industries by 2019.</p> <p>The goal is to strengthen end-of-pipe treatment, but also takes more detailed measures on the sources of pollution and structural issues, including transitions in energy, industrial and transportation.</p> <p>Some of the <u>concrete measures</u>:</p> <ul style="list-style-type: none"> • Relocation or closure of heavy polluting enterprises in urban built-up areas • Enforce industrial pollution control • Cultivation of green environmental protection industries • Strengthen coal quality supervision, crack down the sale and use of inferior coal • Energy efficiency of gas boiler • Improvement of energy saving standard system • Development of hydropower • Green transportation system: Increase the proportion of railway transportation • Promotion of use of new energy vehicles in the public context (new energy vehicles that undertake logistics and distribution in the cities) • Eliminate old vehicles by economic compensation, restricted use and emission supervision • Establishment of a responsibility system for dust control, inclusion of dust control costs in project costs • Installation of online monitoring and video surveillance for dust measurement • Implementation clean diesel vehicles • Strengthen the emergency linkage of heavy polluted weather by improving early warning standard system and implementation of emergency measures, improve of emergency plans • Improvement of the system of laws, regulations and standards and enforcement • Increase economic and policy support by special fund arrangement for central air pollution prevention and local environmental air quality improvement performance. • Increase of tax policy support: reducing vehicle and vessel tax on energy-saving and new-energy vehicles, corporate income tax to enterprises engaged in pollution prevention and control. • Building a pattern of action: mobilize the forces of all sectors of society

²⁰ <https://www.chinadialogue.net/article/show/single/en/10711-China-releases-2-2-action-plan-for-air-pollution> (Retrieved 11.01.2019).

Mexico²¹		
Annual Standards: 75 µg/m ³ PM ₁₀ 24 hours Standard: 40 µg/m ³ PM ₁₀		
Emergency Measures	2016	<ul style="list-style-type: none"> All cars remain idle one day a week and one Saturday a month during 30 days²² Limitation of outdoor activities, free public transport²³
		<u>Smog Alert²⁴</u> <ul style="list-style-type: none"> Phase 1: Cutting down of 30/40% of industrial pollution, halting of 50% of government vehicles, stopping of most polluting vehicles Phase 2: Schools are closed and one day a week ban on vehicles is extended to two days. Phase 3: Closing down of industry
General Measures	1990	<ul style="list-style-type: none"> Rules were put in place that aimed to limit the circulation of older, more polluting vehicles Obligation for car owner to get regular smog checks²⁵
		<u>National Air Quality Policy</u> → Contains strategic lines for prevention, control and mitigation of air pollution
	2016	<u>Measures Transportation</u> <ul style="list-style-type: none"> Vehicles are supposed to get checked every six months²⁶ Improvements to public transportation²⁷
	2016	<u>Plantation²⁸</u> <ul style="list-style-type: none"> planting 700 piers supporting highways and bridges → vertical gardens will expand the city's green area by 40,000 square meters

²¹ <https://wedocs.unep.org/bitstream/handle/20.500.11822/17055/Mexico.pdf?sequence=1&isAllowed=y> (Retrieved 15.01.2019).

²² <https://www.theguardian.com/world/2016/mar/30/mexico-city-air-pollution-orders-cars-off-road-one-day-a-week> (Retrieved 15.01.2019).

²³ <https://www.theguardian.com/world/2016/mar/16/choked-mexico-city-bans-1m-cars-in-air-pollution-alert> (Retrieved 15.01.2019).

²⁴ <https://wedocs.unep.org/bitstream/handle/20.500.11822/17055/Mexico.pdf?sequence=1&isAllowed=y> (Retrieved 15.01.2019).

²⁵ <https://www.theguardian.com/world/2016/mar/16/choked-mexico-city-bans-1m-cars-in-air-pollution-alert> (Retrieved 15.01.2019).

²⁶ <https://www.theguardian.com/world/2016/mar/30/mexico-city-air-pollution-orders-cars-off-road-one-day-a-week> (Retrieved 15.01.2019).

²⁷ <https://www.theguardian.com/world/2016/mar/30/mexico-city-air-pollution-orders-cars-off-road-one-day-a-week> (Retrieved 15.01.2019).

²⁸ <https://www.geo.de/natur/nachhaltigkeit/15674-rtkl-vertikale-gaerten-so-kreativ-kaempft-mexiko-stadt-gegen-die> (Retrieved 15.01.2019).