MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE

Current Climate Change Policy and Co-Benefit Opportunities of the Climate and Air Quality Nexus

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Ministry of Environment and Climate Change

2026.02.17

Current Climate Change in Mongolia

Over the past 85 years, the average air temperature

2.5℃ increased ↘

The annual total precipitation

10-40% decreased ↗

The frequency and intensity of natural disasters

2 times increased ↗

76.9% of the country's territory is affected by desertification ↗

As of 2021, 655 springs and streams have dried up

Glacier area has decreased by 50% ↘

Pasture carrying capacity has significantly declined ↘

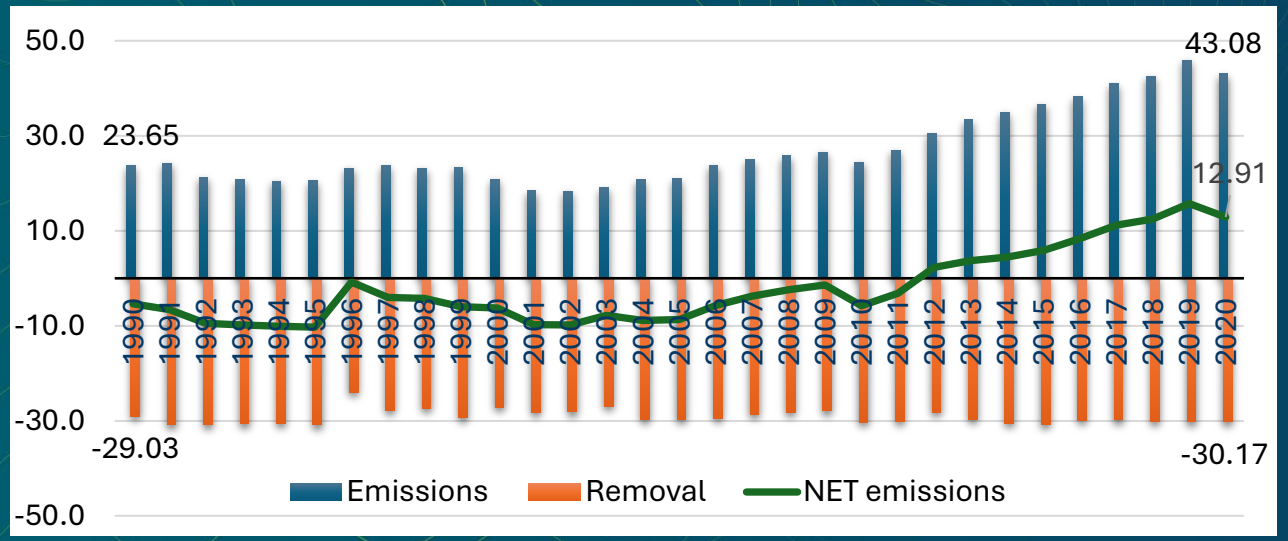
Severe Air Pollution

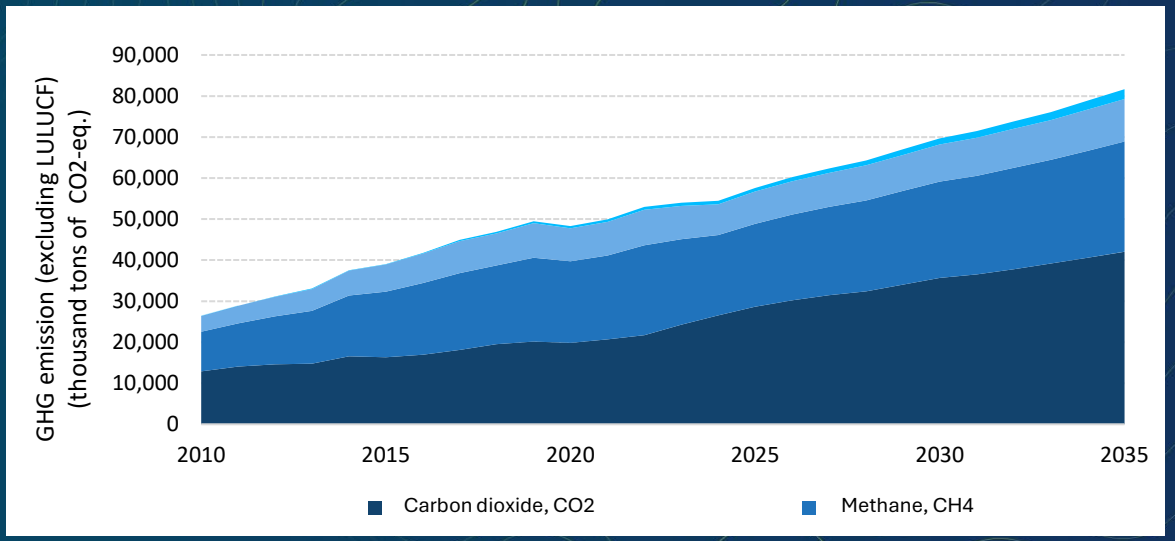
Air pollution in Ulaanbaatar comes from coal power, household fuels, and vehicles, worsening winter health risks.

Integrated Solutions Importance

Combining climate and air quality actions yields health benefits and supports Mongolia's environmental goals.

Mongolia's total and net GHG emissions/removals, 1990-2020/





Sector	Emissions and removals, (Gg CO2eq.)		Change from 1990 (Gg CO2eq.)	Change from 1990 (%)
	1990	2020		
Energy	12,086.55	19,292.48	7,205.92	59.62%
IPPU	284.98	1,147.75	862.77	302.75%
Agriculture	11,221.64	22,390.57	11,168.93	99.53%
Waste	55.62	250.82	195.20	350.95%
Total (excluding LULUCF)	**23,648.79**	**43,081.62**	**19,432.82**	**82.17%**
LULUCF	-29,027.19	-30,172.52	-1,145.33	3.95%
Net total (including LULUCF)	**-5,378.40**	**12,909.10**	**18,287.49**	**340.02%**

NDC 3.0	2010	2015	2020	2025	2030	2035
Energy sector	13,700.4	17,492.6	21,276.7	29,873.1	36,687.9	42,794.7
Energy production	8,035.4	10,170.4	12,390.5	17,436.0	21,568.8	25,444.2
Energy consumption	5,662.4	7,322.2	8,885.6	12,438.2	15,121.0	17,352.6
IPPU	603.7	1,450.1	1,411.9	2,335.4	3,684.9	4,377.6
Construction	3,285.8	4,006.6	4,243.1	4,616.3	4,964.2	5,280.1
Transport	1,773.0	1,865.5	3,230.5	5,486.4	6,471.9	7,694.9
Non-energy sector	12,720.4	21,526.3	27,043.8	27,762.2	32,976.0	38,868.4
Agriculture	12,103.0	20,650.4	25,275.1	24,954.3	28,940.1	33,303.5
IPPU	320.5	465.7	1,164.3	2,037.2	3,042.5	4,339.9
Waste management	296.9	410.1	604.4	770.7	993.5	1,224.9
GHG baseline scenario, Thousand tons of CO_2-eq.	26,420.9	39,018.9	48,320.5	57,635.4	69,663.9	81,663.0

Source: Fourth National Communication Report, 2024

Baseline scenario of the GHG inventory (by economic sector), thousand tCO_2-eq

Air pollutant sources

Vehicles

804,656

28.9%

Ger district

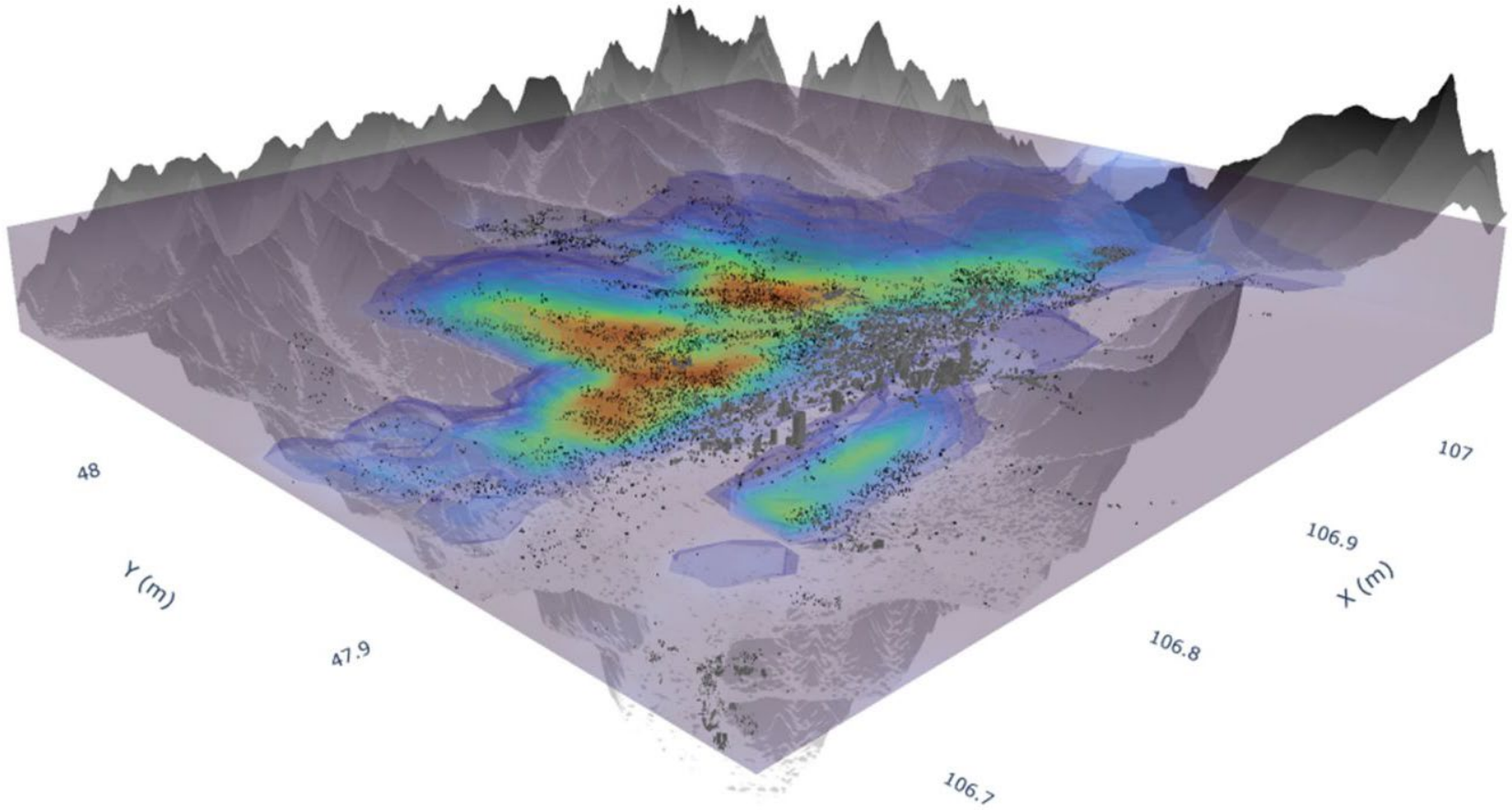
171,976 households

55.6%

Other sources /HOB, CHP ash.../

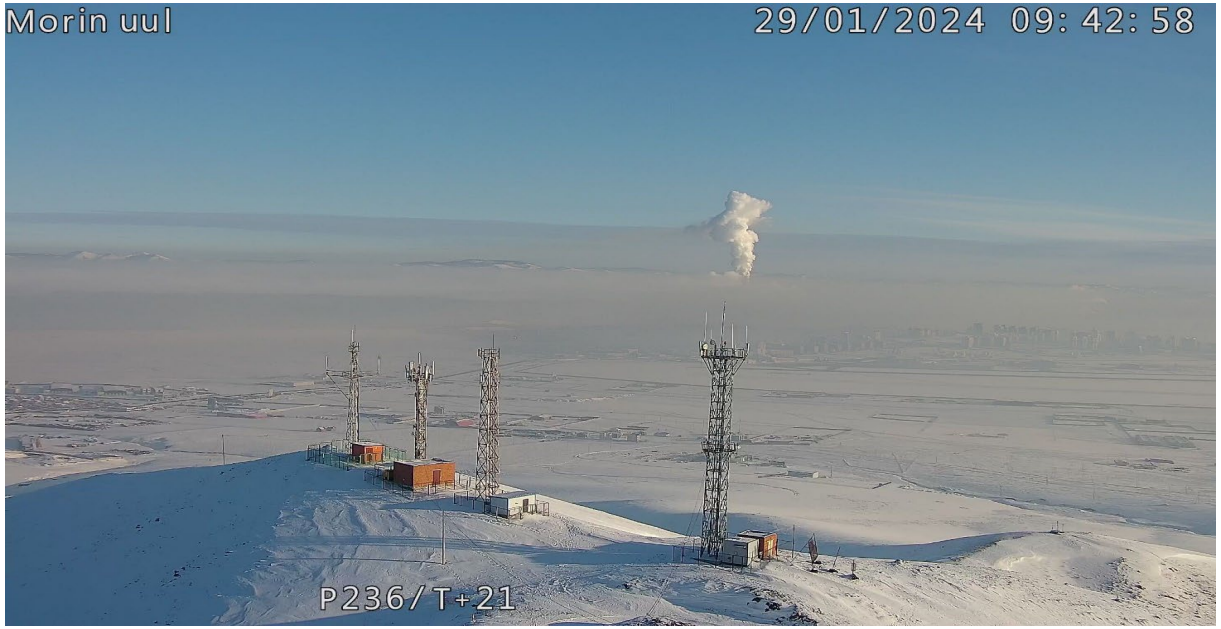
15.5%

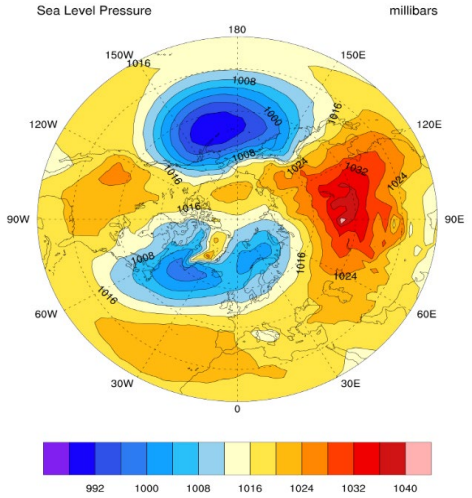
CHP	**~6,677,851,000**	**ton raw coal**
Ger district	**~560,000**	**ton briquette**
Boiler	**~340,827**	**ton raw coal**



If 174 HOB renovation or reforming process takes place, there is an estimation of 33% of air pollution reduction potential.

Atmospheric inversion





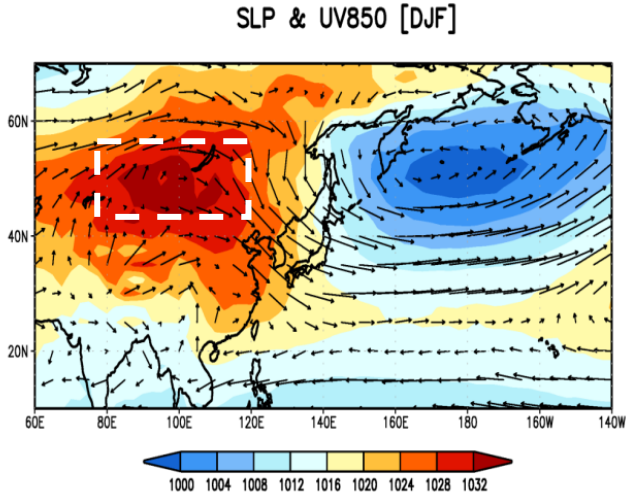


Table 4. Recent changes in the average monthly intensity (°C) of the near-surface temperature inversion over Ulaanbaatar city.

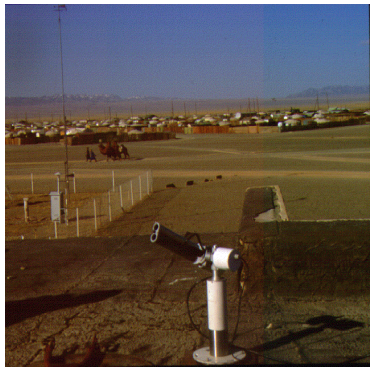
Time	Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
00:00 (UTC+08)	1957–2004	8.8	7.4	4.6	2.9	2.3	1.5	1.5	2.2	3.3	4.5	6.5	8.4	4.5
Morning	2012–2020	8.2	6.5	4.8	3.5	1.3	1.9	0.6	1.5	3.7	4.4	5.5	7.1	4.1
12:00 (UTC+08)	1957–2004	6.4	4.3	2.4	1.6	2.4	1.7	1.3	1.8	2.1	2.6	4.3	6.6	3.1
Evening	2012–2020	5.1	3.4	4.0	2.2	0	0	0	0	2.5	2.5	3.3	4.7	3.5

Remark: The temperature inversion intensity is the difference between temperatures at the bottom and top of the layer. For each radiosonde flight time, the data in the first line correspond to the results of Sumiya [30], while the data in the second line are our estimates for comparison with those of previous studies.

Sumiya et all 2022

Atmospheric Environment Observation

Global monitoring laboratory (GMD) NOAA
CO2, CH4, SF6, N_2O and CO



AERONET Sun-photometer Aerosol Optical Thickness (AOT)

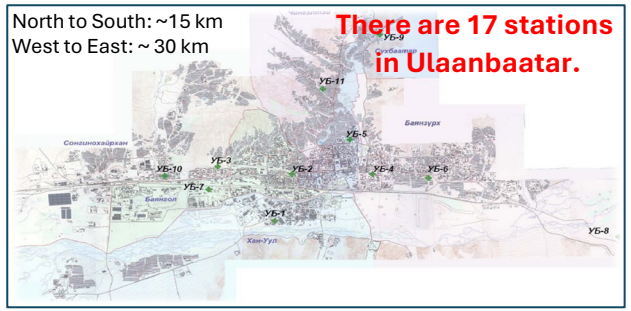
KOSA monitoring PM10 and PM2.5 surface measurements

LIDAR Measurement of Depolarization and Backscattering Ratios.

Ceilometer Measurement of Backscattering coefficient and Cloud base height .

AQMS Measurements of SO2, NOx, CO, O3, PM10 and PM2.5

Ground air quality monitoring network in Mongolia



№	Name	Location	Started year	SO2	NOx	CO	PM10	PM2.5	O3	Time interval
1	UB-1	47°53'38,44" 106°52'57,54"	2010	■	■	■	■		■	Avg 15 min
2	UB-2	47°54'55,46" 106° 53'39,60"	2010	■	■	■	■	■		Avg 15 min
3	UB-3	47° 55'04,73" 106° 50'53,02"	2018	■	■		■	■		Avg 15 min
4	UB-4	47° 55'02,65" 106° 56'14,97"	2010	■	■	■	■	■	■	Avg 15 min
5	UB-5	47°55'58,45" 106°55'16,96"	2010	■	■	■	■		■	Avg 15 min
6	UB-6	47°54'48,42" 106°58'19,31"	2009	■	■					Avg 24 hour
7	UB-7	47°54'20,22" 106°50'32,97"	2010	■	■	■	■			Avg 15 min
8	UB-8	47°51'57,43" 107°07'05,77"	2010	■	■	■	■		■	Avg 15 min
9	UB-11	47°57'05,15" 106°54'14,66"	2010	■	■					Avg 24 hour
10	UB-12	47°57'14,50" 106°55'15,70"	2009	■	■		■	■		Avg 30 min
11	Zuragt	47°55'46.95" 106°53'19.08"	2009	■	■	■	■	■	■	Avg 30 min
12	Tolgoit	47°55'20.96" 106°47'41.37"	2009	■	■	■	■	■	■	Avg 30 min
13	Nisekh	47°51'50.25" 106°46'44.68"	2009	■	■	■	■	■	■	Avg 30 min
14	Amgalan	47°54'48.61" 106°59'52.59"	2009	■	■	■	■	■	■	Avg 30 min
15	BayanKhoshuu	47°57'27.12" 106°49'21.47"	2016	■	■	■	■	■	■	Avg 30 min

Present — **17 Automatic stations**

2010 — **13 Automatic stations**

O342e - UV photometry LED based Ozone analyzer

US-EPA - Automated Equivalent Method : EQOA-0515-225

CO12e – Gaz filter correlation carbon monoxide analyzer

US-EPA - Automated Reference Method : RFCA-0915-228

AF22e - UV Fluorescent SO2 analyzer

US-EPA - Automated Equivalent Method : EQSA-0802-149

AC32e - Chemiluminescent NO-NOx & NO_2 analyzer

PM10 and PM2.5 -Suspended particulate beta gauge monitor

2010 — 27 stations

2000 — 4 stations

1979 — 1 station

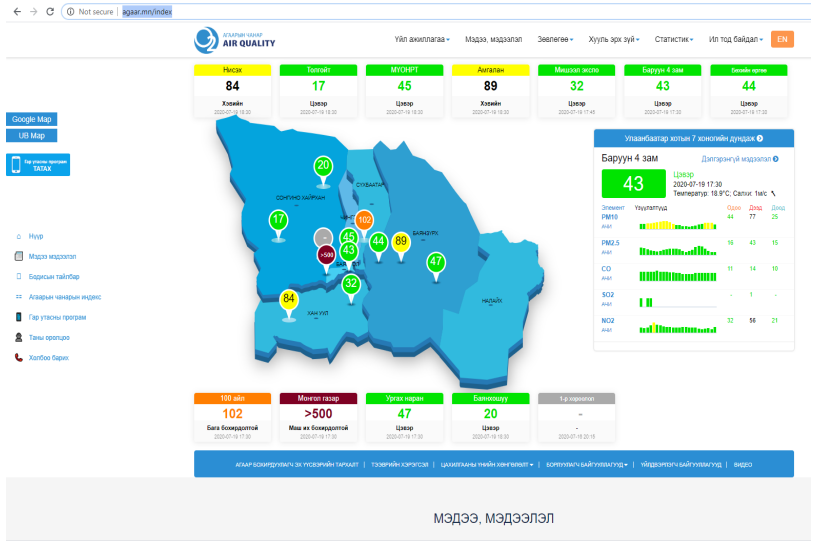
Wet Chemical Method

MEASURING UP TO 6 PRIMARY POLLUTANTS:

SO_2, NO_X, CO, O_3, PM10, PM2.5

Air quality - ground monitoring data dissemination

Web-based air quality-ground monitoring data



Air quality monitoring Mobile applicatio

Agaar.mn

Агаарын чанарын мэдээг иргэдэд түгээх гар утасны програм

- Агаарын чанарын мэдээ
- Мэдээ, мэдээлэл
- Зөвлөгөө
- Агаар бохирдуулах бодисын тайлбар
- Агаарын чанарын индексийн тайлбар

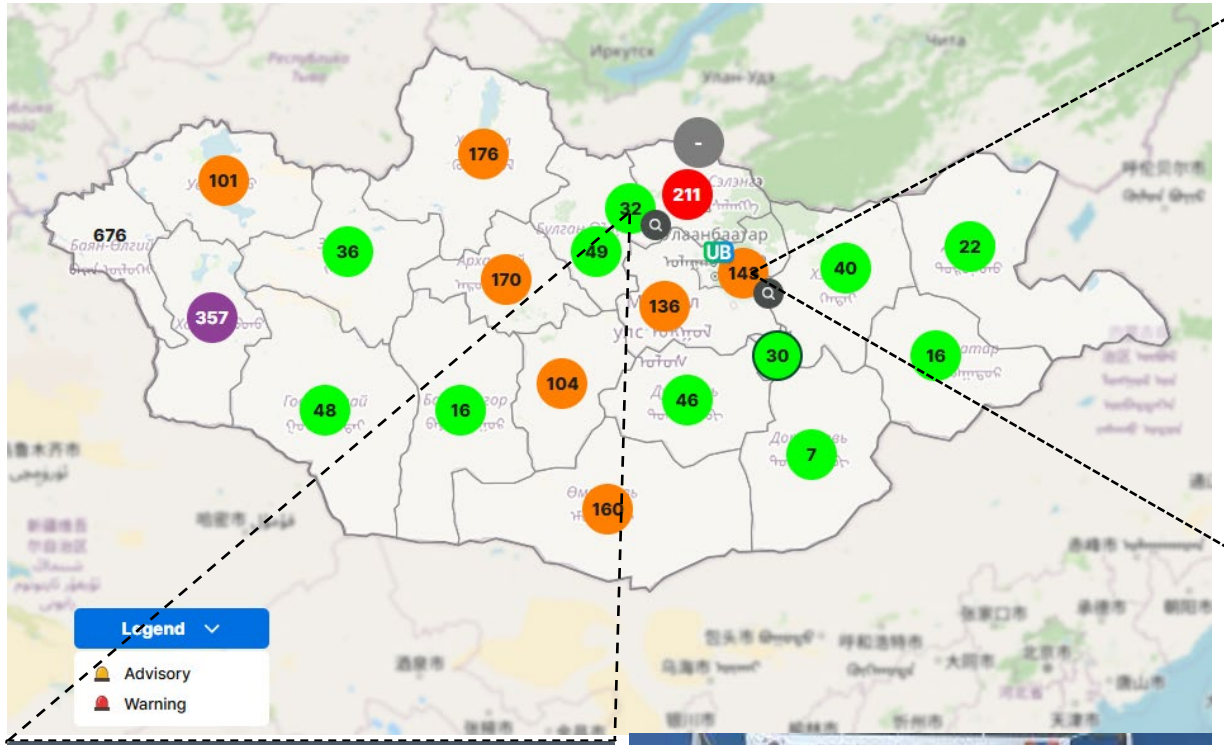
App Store | Google play

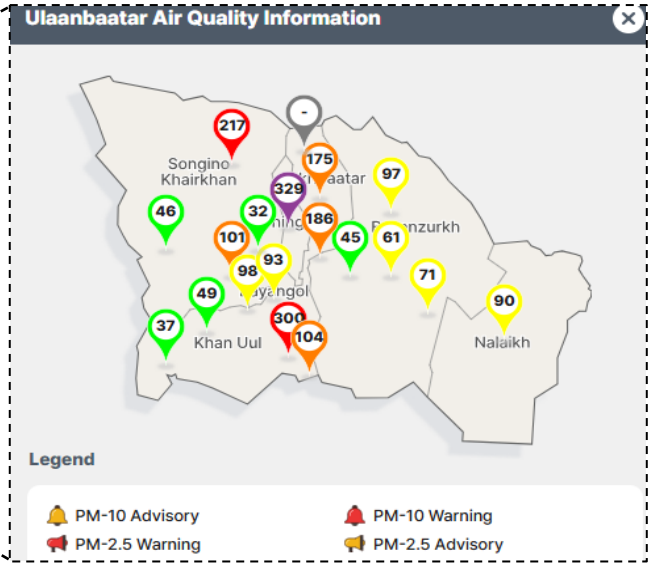
https://weather.gov.mn/environmental (NAMEM)

In wintertime **public disseminated** annually about air quality monitoring by 6 indexes in markets, shops, and other places, where people crowded.

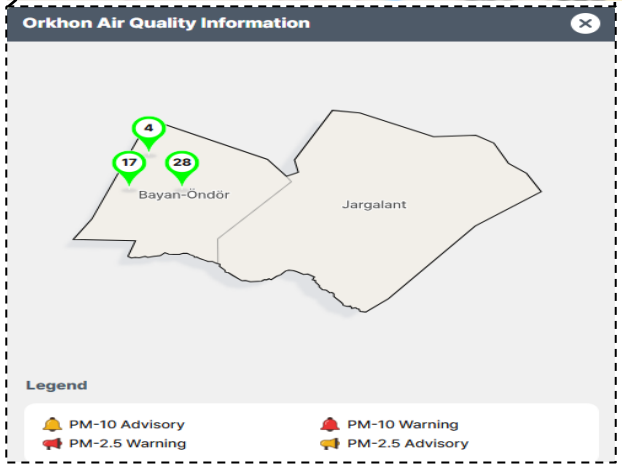
0-50	Clean	Normal	51-100	101-200	Low pollution	Moderate pollution	201-300	301-400	High pollution	Very high pollution	401-500

National Air Quality Monitoring system





As of January 2026, a total of 42 air quality monitoring stations are in place and are active.



Particulate matter (PM2.5)

Data Category: Today / Weekly / Monthly — 2026Year 01Month — 01 Month 01 ~ 01 Month 21 Day — Search | Print | Excel

*Measurement Time : 2026-01-21 16Hour

Hourly Data (Values)

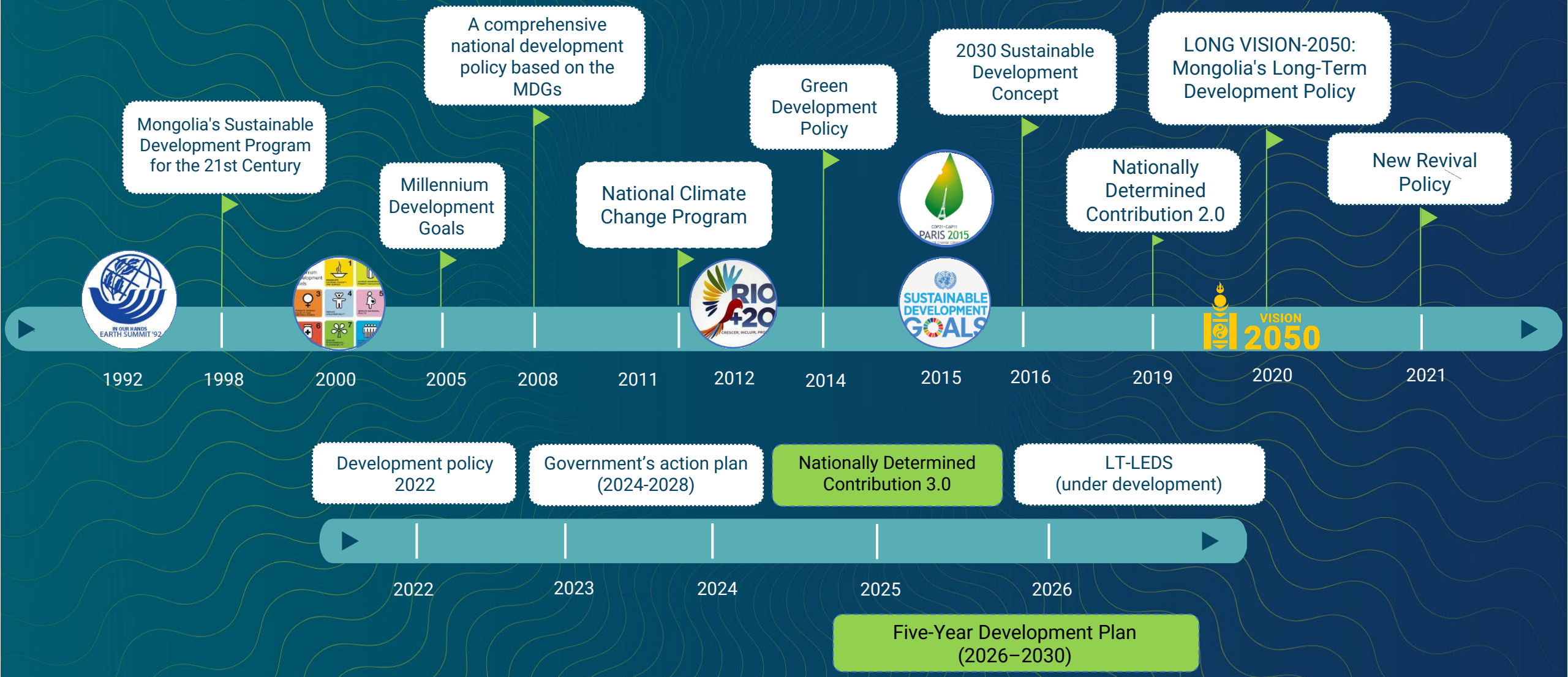
Click the city / aimag name to view detailed data.

Unit (μg/m³)

Category	Nationwide	Ulaanbaatar	Arkhangai	Darkhan-Uul	Khentii	Khuvsgul	Orkhon	Uvs	Zavkhan	Bayankhhongor	Bayan-Ulg
Hourly Average	30.5	67.5	49.0	72.0	15.0	28.0	20.0	40.0	18.0	9.0	111.0
Daily Average	85.3	250.6	99.1	155.3	58.9	171.8	44.9	39.5	16.8	37.6	311.1
Maximum	885.0	676.5	136.0	462.0	188.0	323.0	86.0	87.0	31.0	90.0	885.0
Minimum	0.0	48.0	49.0	72.0	13.0	28.0	16.0	19.0	8.0	4.0	102.0

* In some city / aimag with fewer PM-2.5 monitors, the PM-2.5 average may be higher than the PM-10 average.

Key National Development Policy Frameworks Related to Climate Change



National Climate Change Policy and NDC 3.0

Comprehensive Climate Policy

Mongolia’s climate policy includes multiple frameworks to support sustainable, low-carbon development aligned with global commitments.

Enhanced Emission Reduction Targets

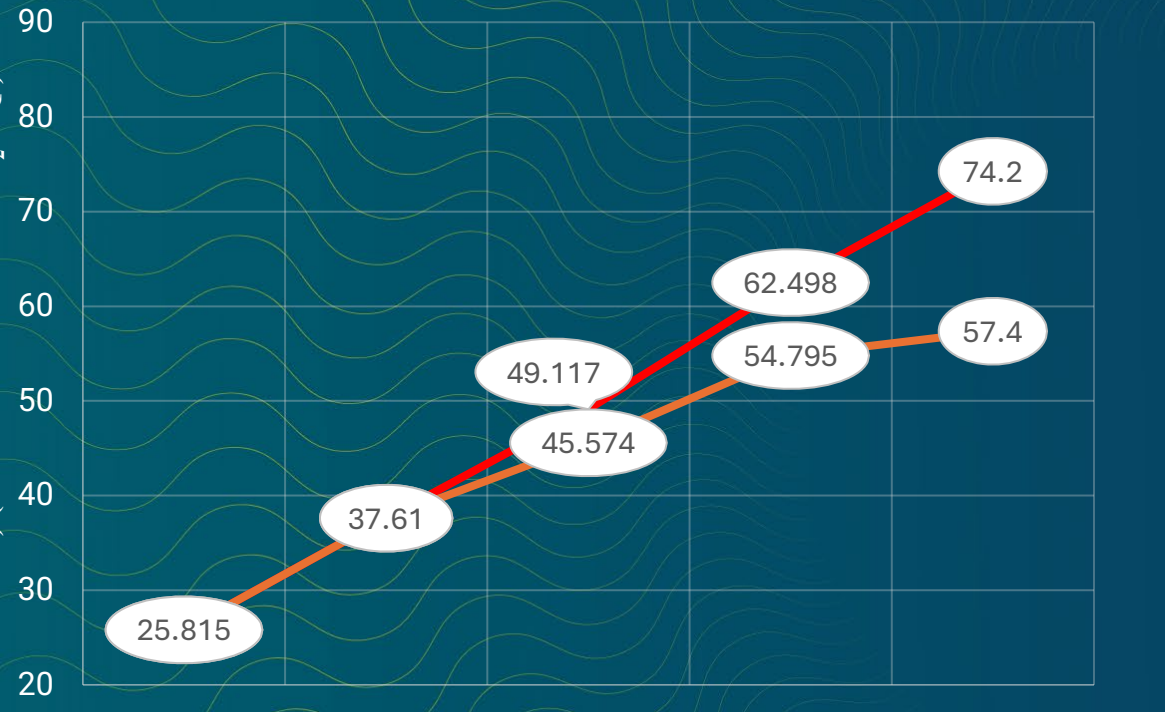
NDC 3.0 raises Mongolia’s greenhouse gas reduction goal to 30.3%, with combined measures targeting up to 52.8% reduction including forestry efforts.

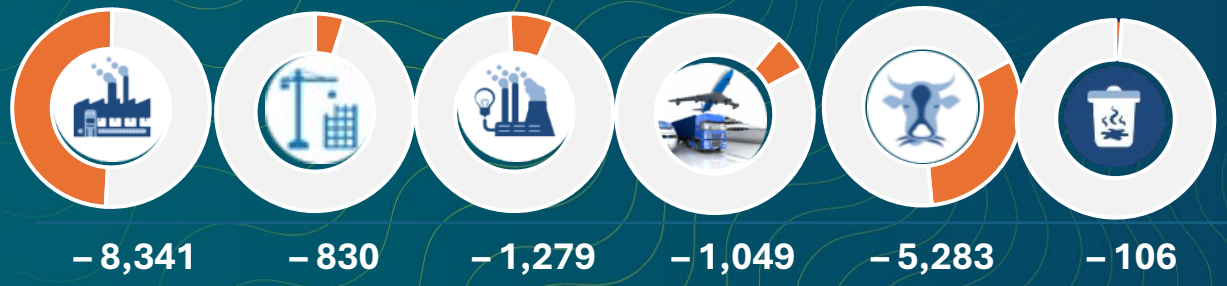
Holistic Adaptation Actions

The policy integrates adaptation efforts to increase resilience in water, agriculture, public health, and social protection sectors.

NDC 2.0 Target

22.7%

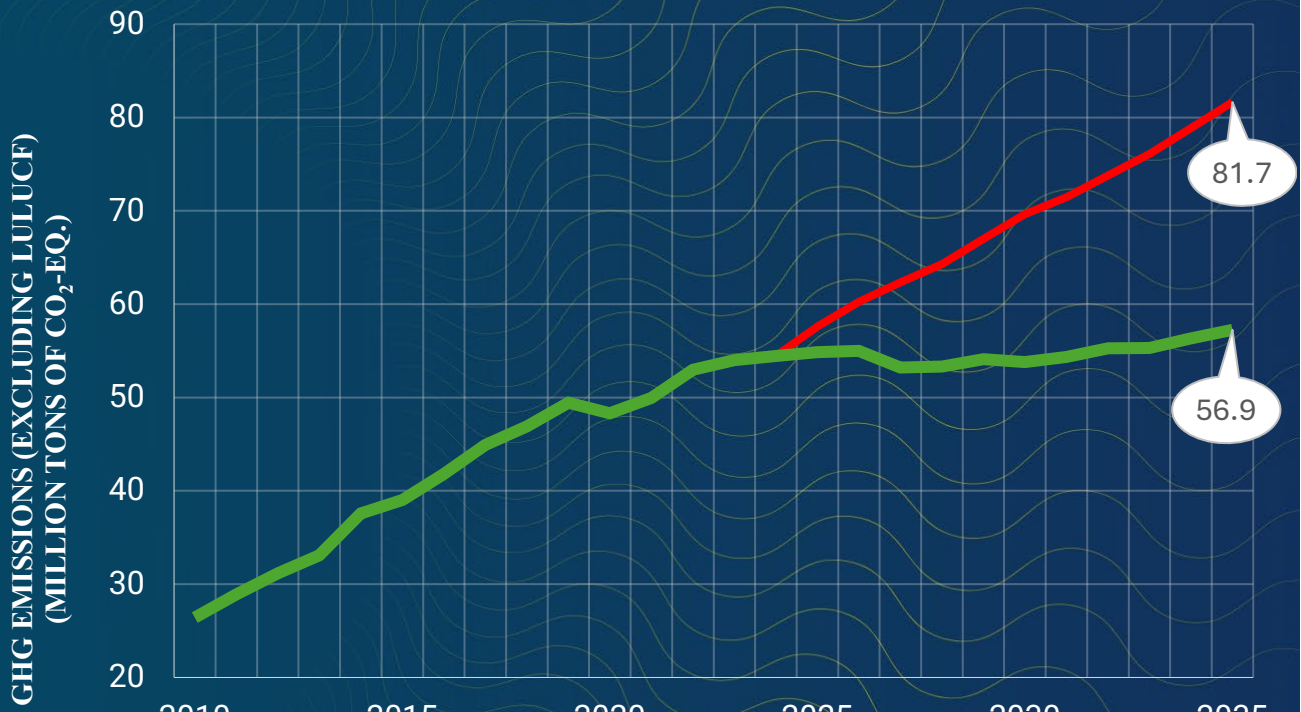


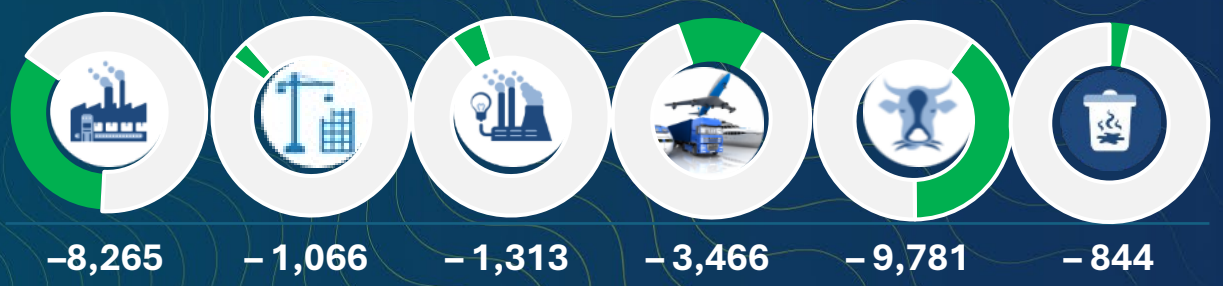


-16.9 million-ton CO2-eq.

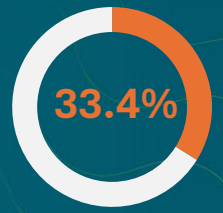
NDC 3.0 Target

30.3%

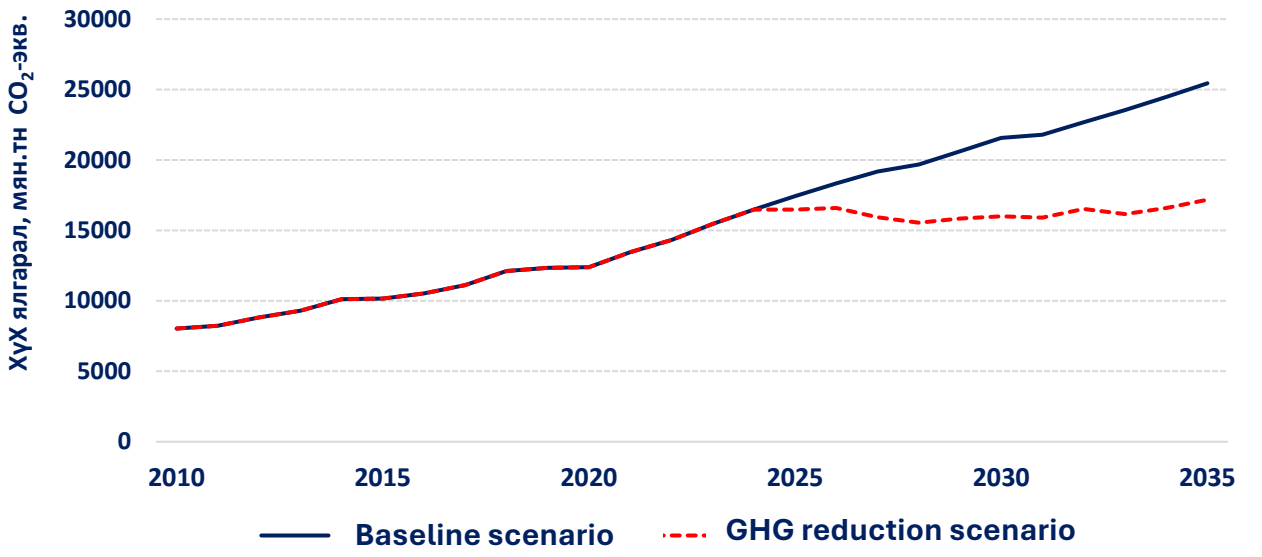


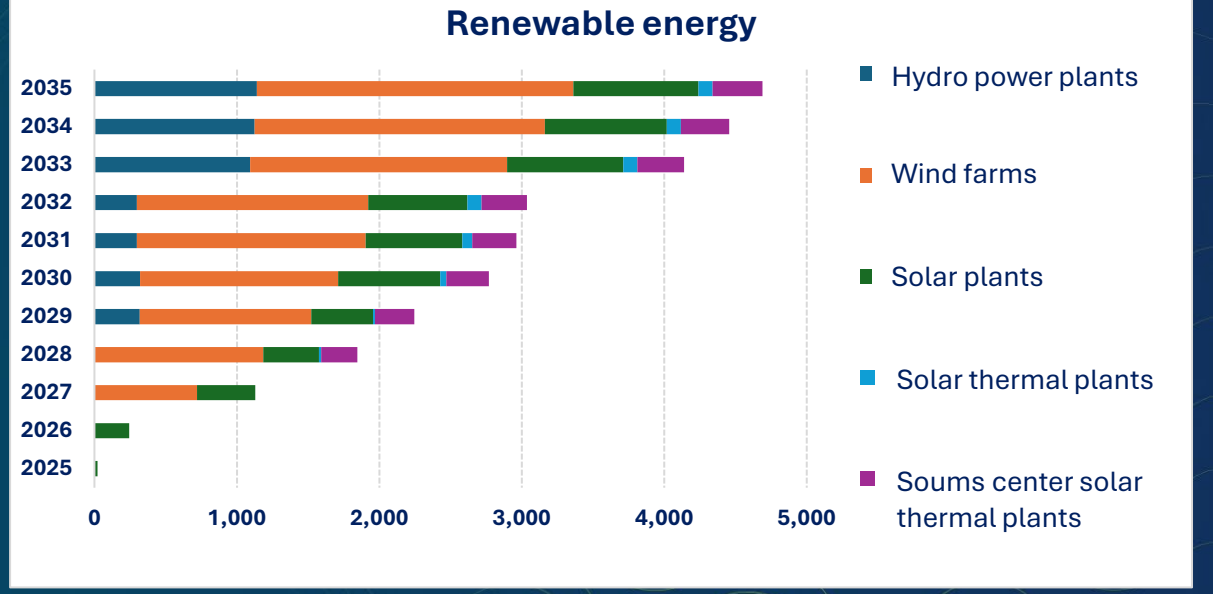


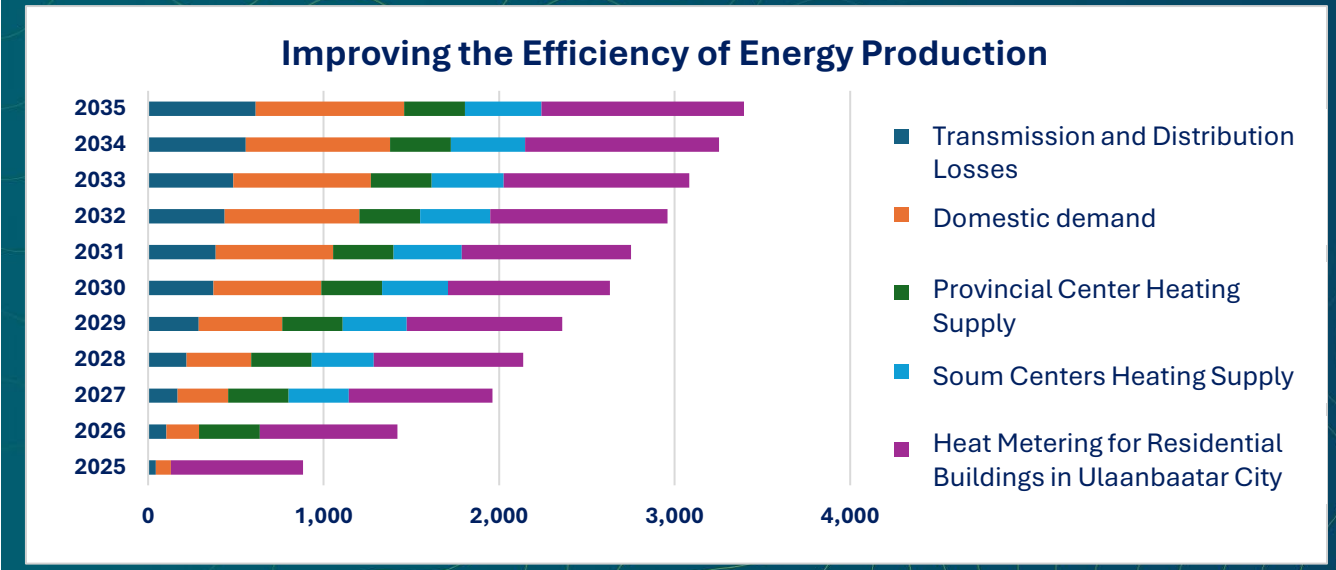
-24.7 million-ton CO2-eq.

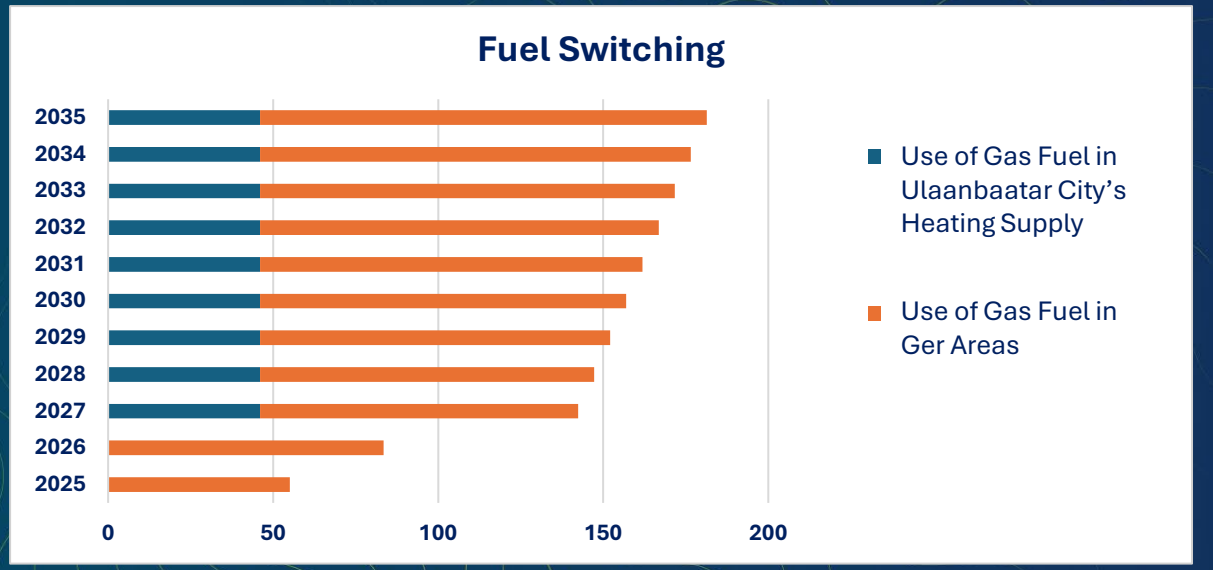


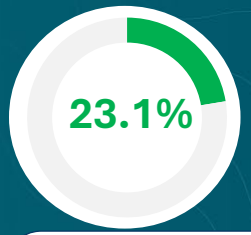
Energy Sector – Energy Production GHG Emission Reduction Targets





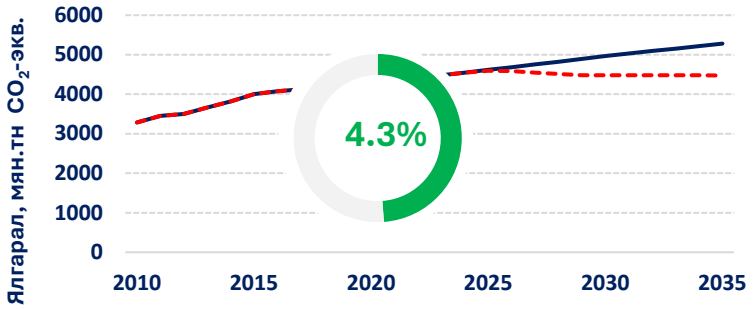






Energy Sector - Energy Consumption
GHG Emission Reduction Targets by Sector

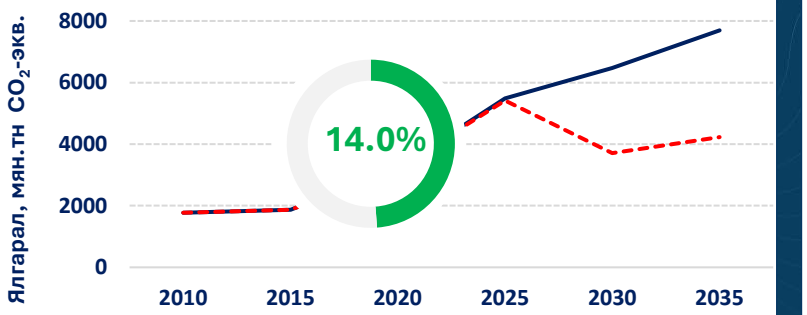
Construction



– 1,066.1 thou. tons CO_2-eq.

Green Residential Buildings - ADB	– 146.6 thou. tons CO2-eq.
Energy-Efficient New Individual Housing	– 108.0 thou. tons CO2-eq.
Thermal Retrofit and Renovation of Schools and Kindergartens	– 131.2 thou. tons CO2-eq.
Thermal Retrofit of Public Budgetary Institution Buildings	– 197.2 thou. tons CO2-eq.
Reducing Heat Loss of Mongolian Gers (Traditional Dwellings)	– 83.5 thou. tons CO2-eq.
House Renovation and Refurbishment	– 300.7 thou. tons CO2-eq.
Thermal Retrofit of Prefabricated Apartment Buildings	– 98.9 thou. tons CO2-eq.

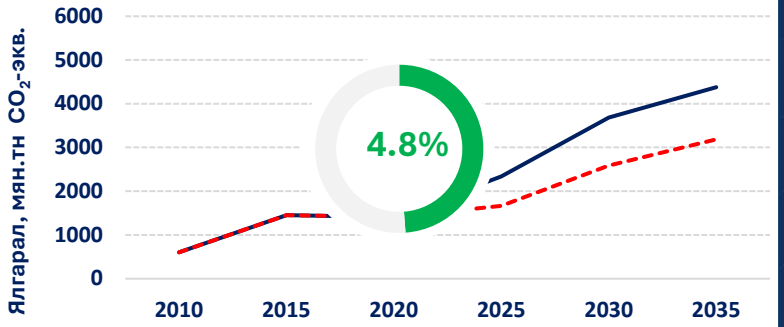
Transport



– 3,465.8 thou. tons CO_2-eq.

Modal Shift to Public Transport	– 105.5 thou. tons CO2-eq..
Transition to Electric Vehicle Use	– 160.5 thou. tons CO2-eq.
Switch to the Use of Euro-5 Standard Fuels	– 113.5 thou. tons CO2-eq.
Shift Coal Export Transport to Railway	–2,940.9 thou. tons CO2-eq.
Shift Import Transport to Railway	– 145.5 thou. tons CO2-eq.

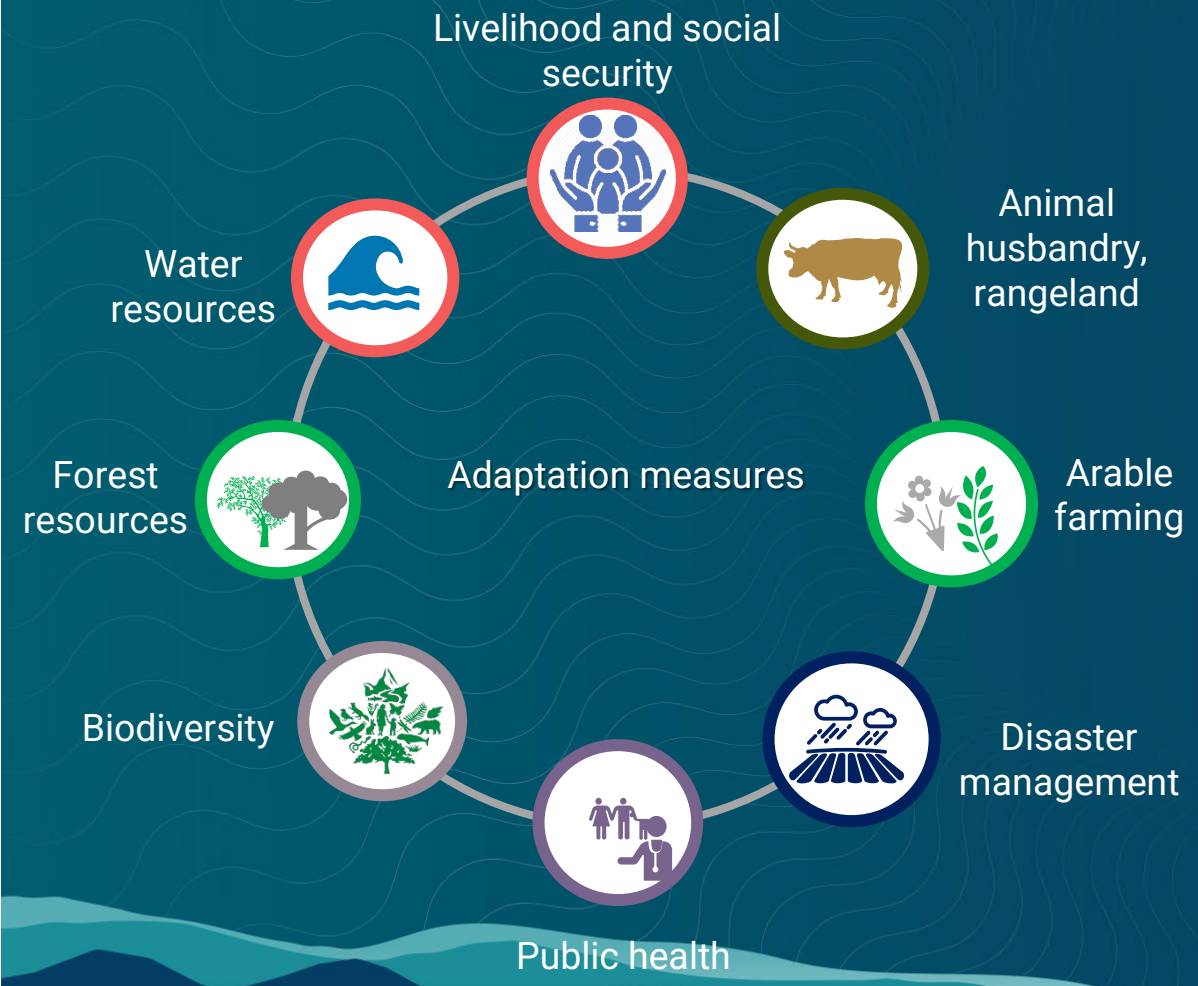
IPPU



– 1,192.5 thou. tons CO_2-eq.

Energy-Efficient Technologies	– 564.0 thou. tons CO2-eq.
Demand-Side Management	– 628.5 thou. tons CO2-eq.

NATIONALLY DETERMINED CONTRIBUTION 2.0



Newly added

NATIONALLY DETERMINED CONTRIBUTION 3.0

Education and Culture Sectors

- Enhance climate knowledge, awareness, and capacity, and support the participation and leadership of children and youth;
- Protect tangible and intangible cultural heritage, traditional culture, and knowledge, and establish systems for adaptation to climate change.

Cross-Sectoral Coordination and Integration

- Improve the legal framework and institutional capacity;
- Establish sustainable financing mechanisms;
- Ensure gender equality and balanced social inclusion;
- Support research and evidence-based decision-making.

Air Quality Policy and Institutional Reforms

Institutional Restructuring

National committees on air pollution were restructured to enhance oversight and coordination in Mongolia.

Fuel Transition Policy

Enforcement of banning raw coal and mandating processed fuel usage improved air quality in designated zones.

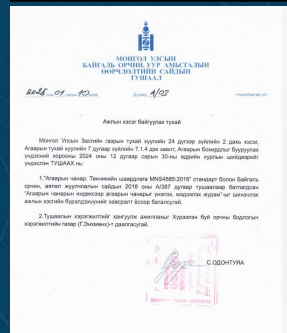
Stricter Air Quality Standards

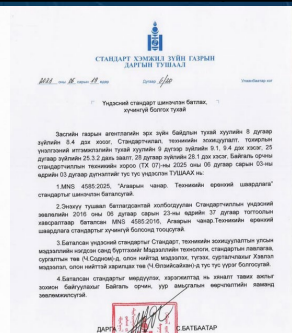
Updated environmental standards introduced tighter pollutant limits, especially for PM2.5, aligning with global guidelines.

Policy and Climate Alignment

Reforms reflect Mongolia's commitment to integrate air quality policies with national climate change objectives.

Measures	Period for the average amount	MNS4585:2016	MNS4585:2025
PM2.5, mkg/m^3	24 hours	50	37.5
	Annual	25	15
PM10, mkg/m^3	24 hours	100	100
	Annual	50	50
NO2, mkg/m^3	20 min	200	200
	24 hours	50	50
	Annual	40	30
CO, mg/m^3	20 min	60	60
	1 hour	30	30
	24 hours	-	4





INCOME TAX BASED INCENTIVE FOR THE ENTITIES

INCOME TAX 1% DISCOUNT

1%

Protect natural resources such as forests, animals, and water. Increase resources, use them wisely, and restore them. Reduce air, water, and soil pollution, and combat desertification.

AIR — **11** measures

FORESTRY — **5** measures

SOIL PROTECTION AND COMBATTING DESERTIFICATION — **2** measures

WASTE — **4** measures

WATER — **5** measures

BIODIVERSITY — **4** measures

EXTERNAL UPPORT — **1** measure

2025, Minister's rder number A/93
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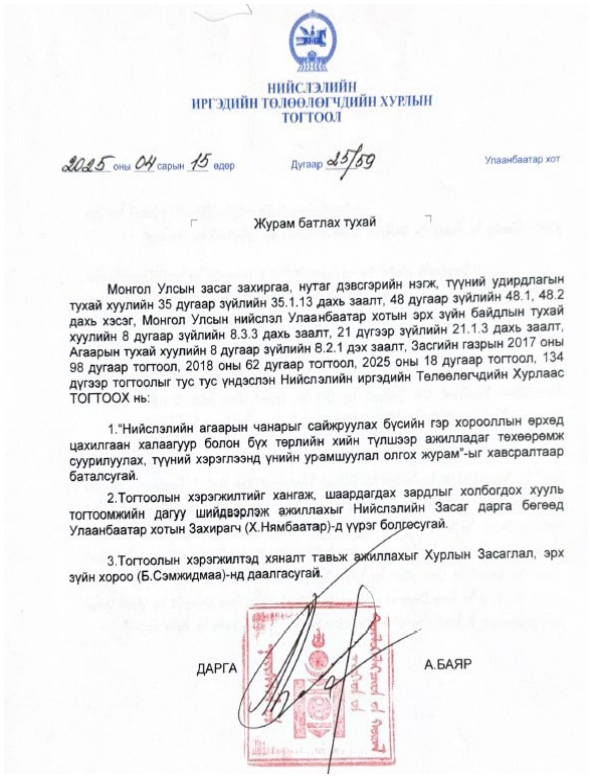
Air Quality Measures with Climate Co-Benefits



НИЙСЛЭЛИЙН
ИРГЭДИЙН ТӨЛӨӨЛӨГЧДИЙН ХУРЛЫН
ТОГТООЛ

2025 оны 04 сарын 15 өдөр Дугаар 25/59 Улаанбаатар хот

Журам батлах тухай

Монгол Улсын засаг захиргаа, нутаг дэвсгэрийн нэгж, түүний удирдлагын тухай хуулийн 35 дугаар зүйлийн 35.1.13 дахь заалт, 48 дугаар зүйлийн 48.1, 48.2 дахь хэсэг, Монгол Улсын нийслэл Улаанбаатар хотын эрх зүйн байдлын тухай хуулийн 8 дугаар зүйлийн 8.3.3 дахь заалт, 21 дүгээр зүйлийн 21.1.3 дахь заалт, Агаарын тухай хуулийн 8 дугаар зүйлийн 8.2.1 дэх заалт, Засгийн газрын 2017 оны 98 дугаар тогтоол, 2018 оны 62 дугаар тогтоол, 2025 оны 18 дугаар тогтоол, 134 дүгээр тогтоолыг тус тус үндэслэн Нийслэлийн иргэдийн Төлөөлөгчдийн Хурлаас ТОГТООХ нь:

1."Нийслэлийн агаарын чанарыг сайжруулах бүсийн гэр хороллын өрхөд цахилгаан халаагуур болон бүх төрлийн хийн түлшээр ажилладаг төхөөрөмж суурилуулах, түүний хэрэглээнд үнийн урамшуулал олгох журам"-ыг хавсралтаар батлагдугай.

2.Тогтоолын хэрэгжилтийг хангаж, шаардагдах зардлыг холбогдох хууль тогтоомжийн дагуу шийдвэрлэж ажиллахыг Нийслэлийн Засаг дарга бөгөөд Улаанбаатар хотын Захирагч (Х.Нямбаатар)-д үүрэг болгосугай.

3.Тогтоолын хэрэгжилтэд хяналт тавьж ажиллахыг Хурлын Засаглал, эрх зүйн хороо (Б.Сэмжидмаа)-нд даалгасугай.

ДАРГА А.БАЯР

Period for fiscal incentive:

/Heating season: 15 Sep – 15 May every year

Reducing Solid Fuel Use

Transitioning households and boilers to cleaner fuels significantly cuts particulate matter and carbon dioxide emissions.

Fiscal Incentives for Pollution Reduction

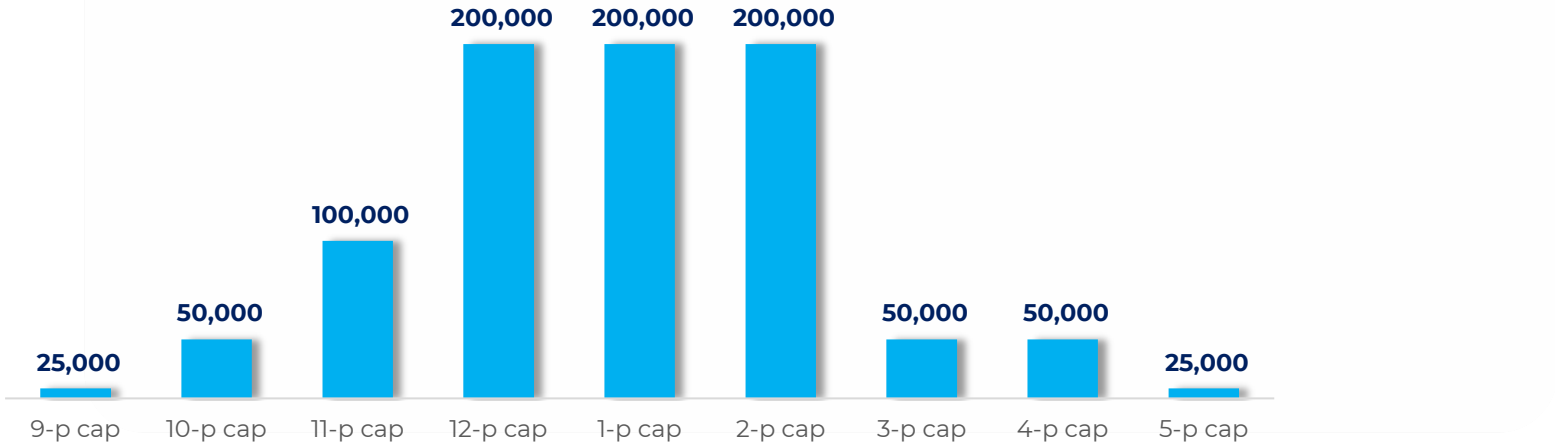
1% Corporate Income Tax relief encourages private investments in pollution control and cleaner technologies.

Clean Energy Installations

Installing heat pumps and upgrading municipal fleets improve air quality and reduce emissions effectively.

Cross-Sectoral Policy Alignment

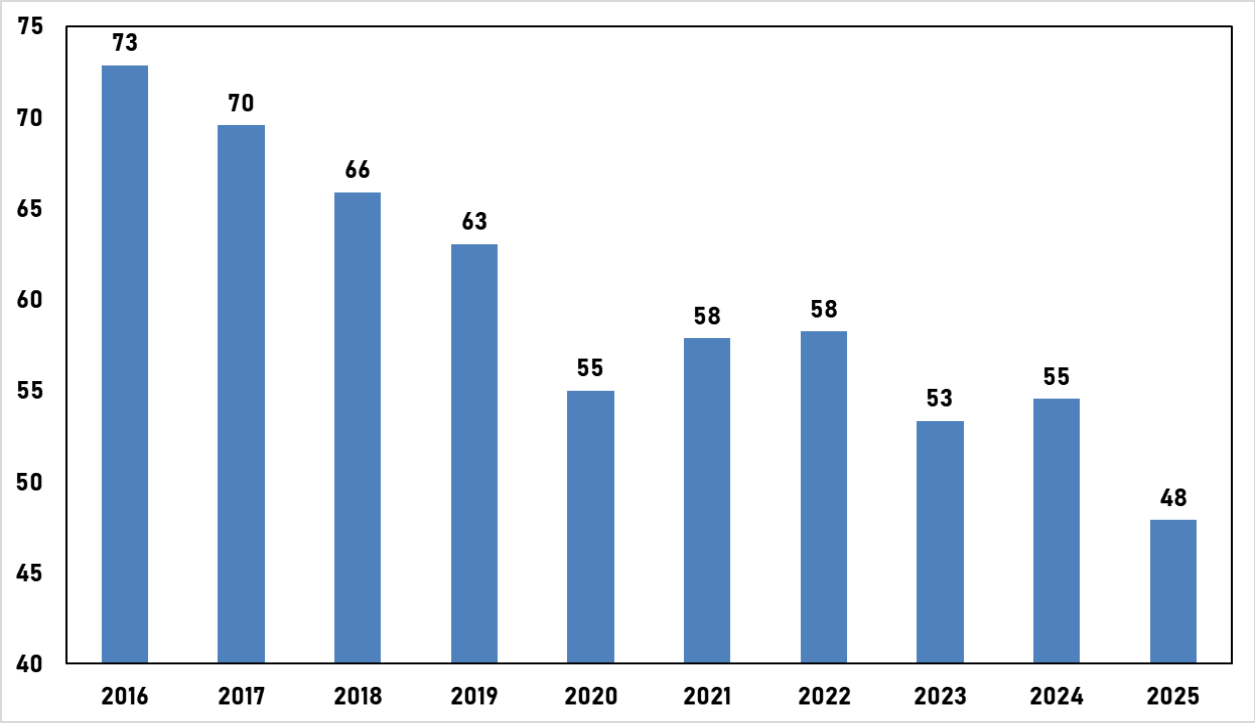
Air quality measures complement national climate goals, highlighting integrated environmental policy strategies.

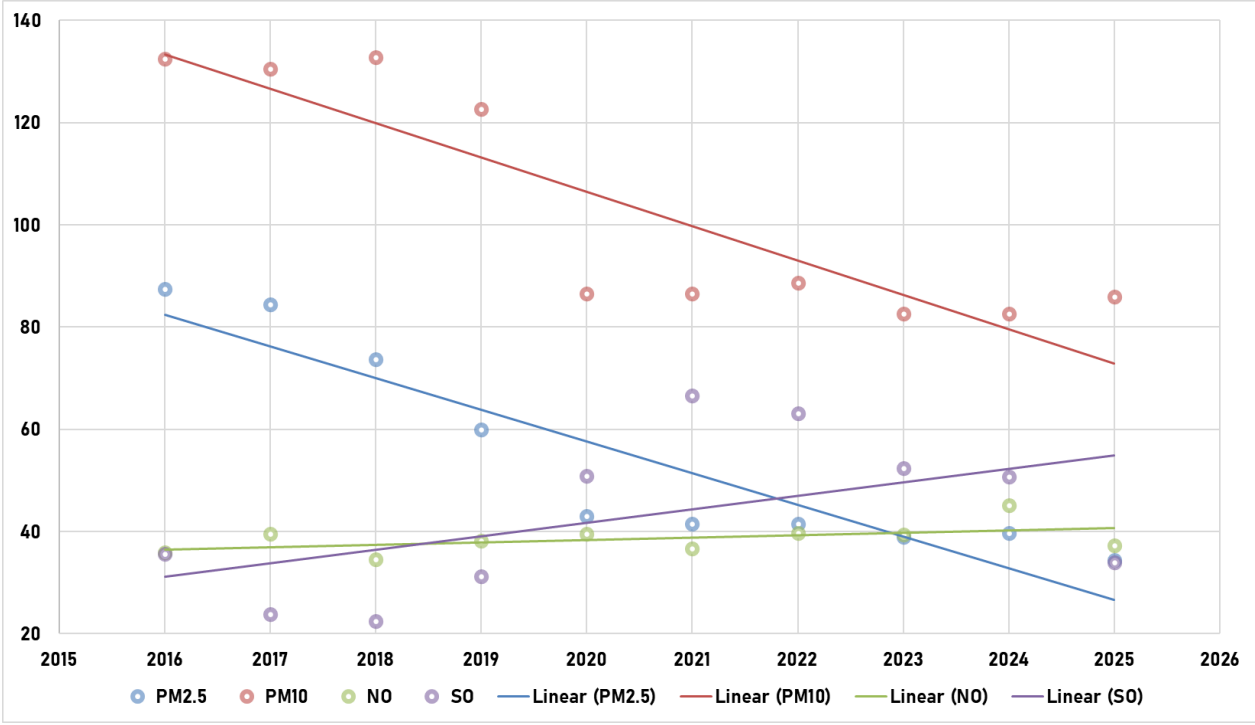


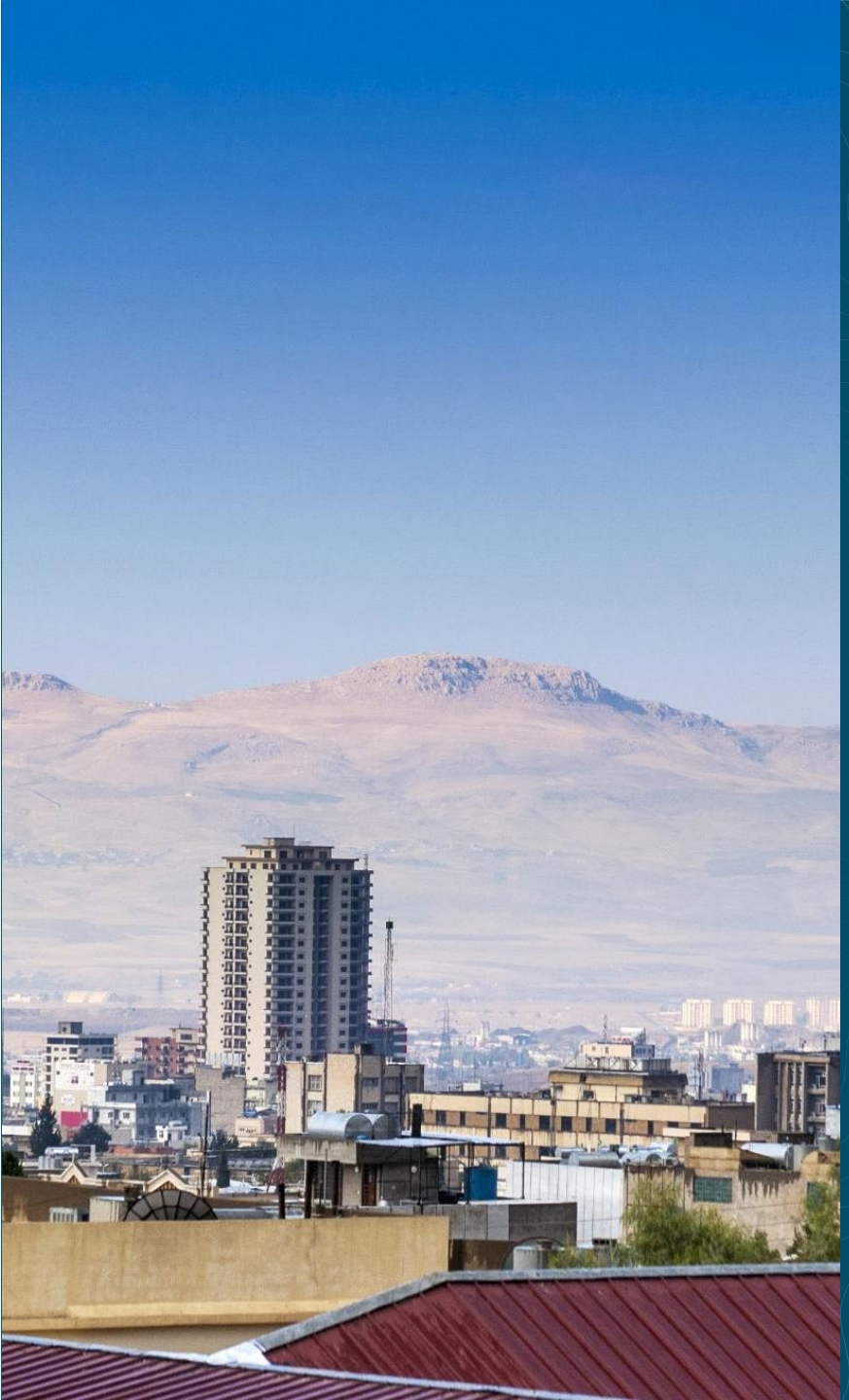
Air Quality Index

Агаарын чанарын индекс	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Цэвэр	8.00%	9.00%	13.00%	17.22%	23.22%	23.85%	25.10%	34.98%	31.03%	37.00%
Хэвийн	25.00%	25.00%	23.00%	23.59%	28.90%	27.71%	24.39%	22.24%	24.83%	23.90%
Бага бохирдолтой	53.00%	54.00%	51.00%	51.36%	45.87%	44.81%	47.07%	39.19%	39.44%	35.90%
Бохирдолтой	8.00%	7.00%	8.00%	5.20%	1.91%	3.10%	2.77%	2.84%	3.37%	2.50%
Их бохирдолтой	3.00%	3.00%	3.00%	1.73%	0.11%	0.37%	0.45%	0.47%	0.97%	0.40%
Маш их бохирдолтой	3.00%	2.00%	2.00%	0.89%	0.00%	0.16%	0.22%	0.28%	0.37%	0.30%

Sources	2019	2025	AP rate
CHP	4514227 t	6677851 t	47.9%
HOB	180638 t	340827 t	88.6%
Vehicles	530058	804656	51.8%







Climate Mitigation Measures with Air Quality Co-Benefits

Renewable Energy Expansion

Hydropower, wind, solar PV, and solar thermal reduce coal reliance, cutting greenhouse gases and particulate emissions.

Heating System Modernization

Modernizing heating in provincial areas and Ulaanbaatar with natural gas and efficient heat delivery lowers coal combustion.

Building Energy Efficiency

Renovations and insulation upgrades in residential, schools, and public buildings reduce energy demand and pollution.

Sustainable Transport Initiatives

Shifting to rail freight, promoting public transport, electric vehicles, and Euro-5 fuels cut emissions significantly.

Co-Benefit Opportunities

Mitigation Measures Impact

Clean energy, efficient buildings, and modern transport reduce pollutants and greenhouse gases simultaneously.

Air Quality Interventions

Fuel switching and boiler upgrades in the medium-term reduce emissions and support climate goals.

Public Health Integration

Indoor air quality management and disease prevention improve societal resilience and well-being.

Green Finance and MRV

Tax incentives and carbon markets mobilize investments, while MRV systems ensure transparent reporting.

Next Steps and Key Messages

Finalizing Climate Policies

Mongolia is completing key policies like NDC 3.0, Draft Climate Law, and carbon market regulations to guide climate action.

Aligning Air Quality Plans

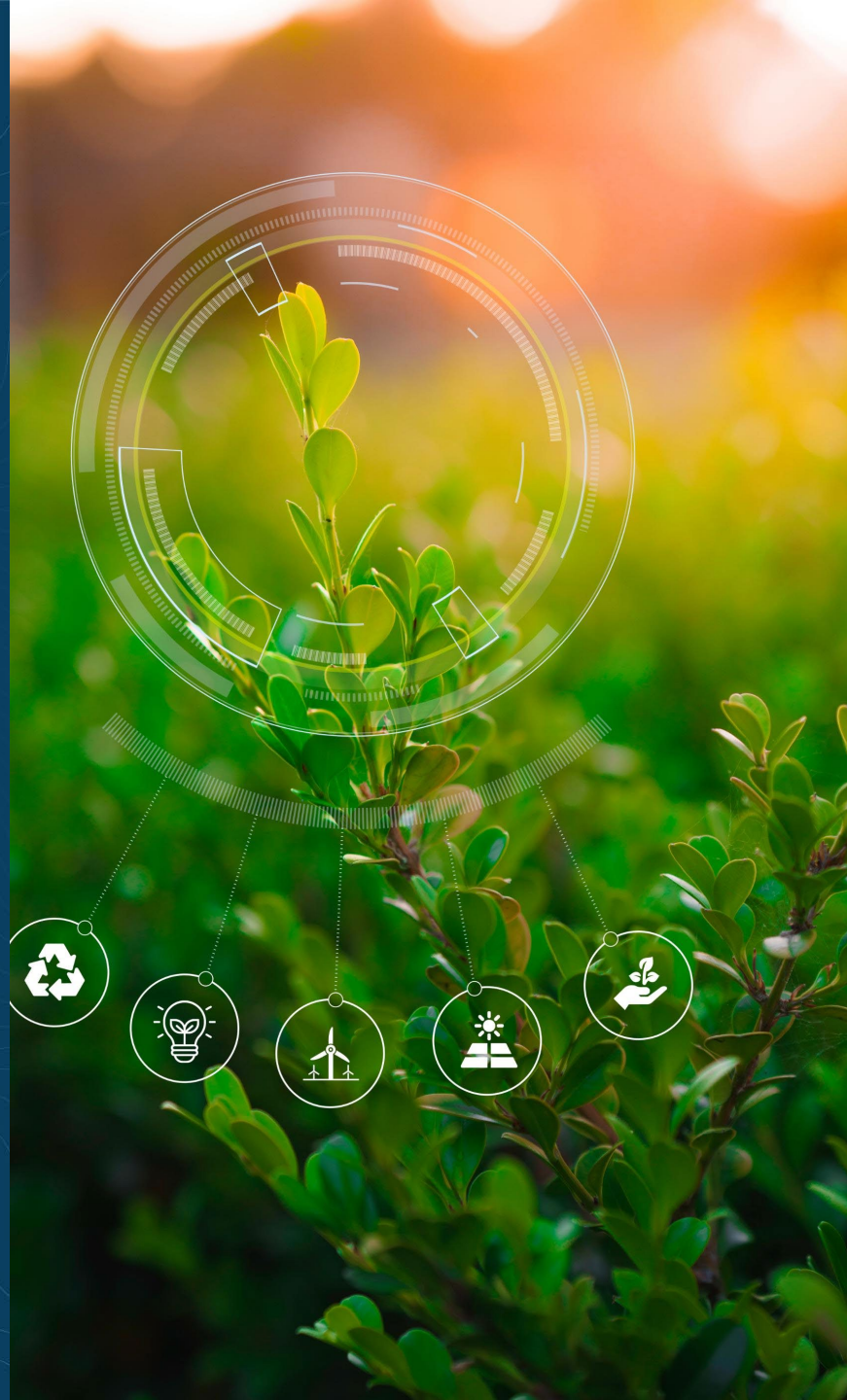
Integrating NDC 3.0 with air quality plans ensures co-benefits and prevents policy fragmentation in Mongolia.

Expanding Green Finance

Access to green bonds, loans, and financial products supports scaling of clean heating and low-emission transport.

Innovation and Digital Monitoring

Science-based approaches using digital data analysis enhance decision-making and project effectiveness.



Needs, Requirements, and Next Steps

Role of the Government

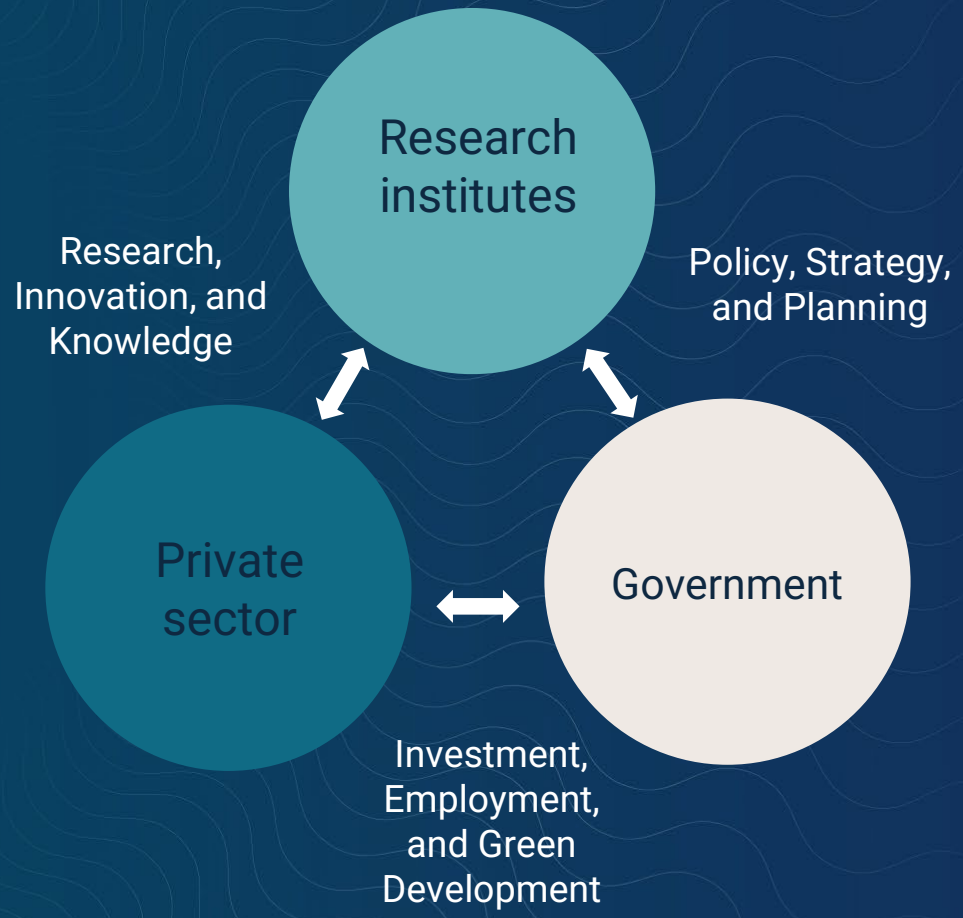
- Establish a Stable Policy and Legal Environment
- Support the Private Sector through Transparency, Tax Incentives, and Benefits
- Strengthen the Measurement, Reporting, and Verification (MRV) System

Role of the Private Sector

- Implement Innovative and Responsible Investments
- Develop Green Bonds, Loans, and New Financial Products
- Participate as an active Carbon Market engagement

Research and Science

- Propose Science-Based and Innovation-Driven Solutions
- Develop Digital Monitoring and Data Analysis



Thank you for your kind attention

🌱 *Investing in Green Technology is Investing in the Future*

Contact us:

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