GOVERNMENT OF MONGOLIA

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

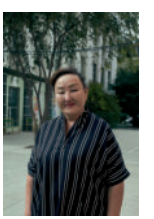
Swiss Agency for Development and Cooperation SDC

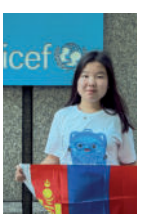
unicef
for every child

IMPACT OF AIR POLLUTION ON MATERNAL AND CHILD HEALTH PROJECT (2018-2023)

DATA AND EVIDENCE | TRANSFORMATIVE ACTIONS | POLICY AND PLANS

PAGES





IMPACT OF AIR POLLUTION ON MATERNAL AND CHILD HEALTH: **MILESTONES AND INNOVATIONS**

Bat-Erdene Bat-Ulzii

Minister of Environment and Tourism of Mongolia

In Mongolia, almost 90 per cent of the overall energy supply is used only for heating purposes. Coal is the primary energy source, which has led to increasing levels of GHG emissions and air pollution. Air pollution has devastating effects on the country's environment and socio-economic sectors, including citizens' health—especially children and pregnant women exposed to toxic pollutants—leading to a higher incidence of stillbirth, preterm birth, pneumonia, asthma, lung dysfunction and nervous system damage.

The Ministry of Environment and Tourism has been at the forefront of tackling air pollution with other ministries agencies, and development partners. As part of the National Programme for Reducing Air and Environmental Pollution, the Government of Mongolia has banned the use of raw coal in Ulaanbaatar, provided discounts on night electricity tariffs in ger districts, supported the shift to electric heating, and replaced coal-fired heat-only boilers in public buildings with clean alternative heating technologies. As a result of these measures, fine particulate matter (PM2.5) concentrations in Ulaanbaatar have decreased by up to 40 per cent.

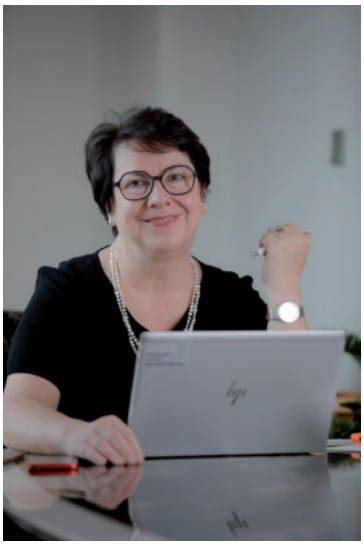
With contributions from donors, the Government of Mongolia has been implementing a number of projects to reduce air pollution in urban areas. One successful project is the Impact of Air Pollution on Maternal and Child Health, funded by the Swiss Agency for Development and Cooperation and implemented by the United Nations Children's Fund.

With technical assistance from UNICEF, we have approved priority research on air pollution and an action plan for implementation, an action plan for the implementation of Nationally Determined Contributions to Climate Change, an action plan for the implementation of environmental health, and national building planning and design codes for health facilities, schools, and kindergartens. The AgaarNeg knowledge management platform, managed and maintained by the Secretariat of the National Committee for Reducing Environmental Pollution, serves as a central knowledge resource and collaboration hub for stakeholders working to reduce air pollution in Mongolia.

The project has made possible the installation of advanced mechanical ventilation systems in six kindergartens and three health facilities, allowing a constant flow of outside air into rooms and providing filtration, dehumidification, and the conditioning of incoming outside air. This quieter and lower-cost ventilation system has brought a range of benefits, such as improved IAQ, elimination of mold and moisture, and a reduction of health problems caused by indoor air pollutants. Over 100 low-cost sensors for IAQ monitoring were installed in kindergartens and health facilities, and community-based maternal and child healthcare was institutionalized.

In 2019, the Ministry of Environment and Tourism and the National Committee for Environmental Pollution Reduction signed an agreement with State Bank, XacBank, and Khan Bank to subsidize loans targeted for the home insulation, electric heating, and eco-toilets of ger area residents. UNICEF's flagship Cooking, Heating and Insulation Products (CHIP) package has been recognized as a green product and is eligible for green loans issued by commercial banks. I am pleased to acknowledge that the CHIP package has helped improve indoor air quality for over 1,600 households in Ulaanbaatar and six provinces, benefiting the population in these areas, which totals 1,765,160 people. To make CHIP more affordable for people living in ger areas, the Ministry of Environment and Tourism has taken the strategic step of reducing the annual interest rate for green loans from eight per cent to three per cent per annum.

On behalf of the Ministry of Environment and Tourism and its agencies, I express my sincere gratitude to SDC, UNICEF, contributing donors, and partners. ■



Stefanie Burri, PhD

Head of Swiss Agency for Development and Cooperation (SDC), General Consul

Switzerland and Mongolia are committed to implement the Agenda 2030 for Sustainable Development. The Swiss Agency for Development and Cooperation (SDC) globally supports initiatives that contribute to a 'greener world' and measures to reduce air pollution. We are convinced that these measures not only make our world much more liveable, but can also very concretely impact people's improved health and livelihood. The Impact of Air Pollution on Maternal and Child Health project is an excellent example.

On behalf of the Swiss Agency for Development and Cooperation, it is my pleasure to share the results of this project implemented by UNICEF and supported by the Swiss government.

Since transitioning from a centrally planned socialist economy to a free market system, Mongolia has faced social and environmental challenges associated with rapid urban development. Air pollution is a distinctive problem among the various challenges because it affects almost everyone, from unborn children to the very old and those who suffer from pre-existing health issues.

While most of the efforts made by the government and development partners focus on cleaner energy solutions and infrastructure, the project successfully piloted and introduced solutions to reduce on-site risks for children and pregnant women in households, kindergartens and health facilities, as well as to influence relevant policies.

With different key players, we have contributed significantly to improving primary healthcare services for children and pregnant women to cope better with indoor air pollution and, consequently, reduced incidences of pneumonia amongst children and air pollution-related pregnancy risks.

Ulaanbaatar is one of the coldest cities in the world. With long winter months, keeping houses warm and heated is of utmost importance. Successfully tested solutions using electricity instead of coal for the most vulnerable families in Ulaanbaatar and provincial centre of Bayankhongor Province are being introduced to the local market. Among these solutions, the Cooking, Heating and Insulation Products (CHIP) enables the replacement of traditional coal-based stoves in gers. A crucial factor for deciding to replace stoves is the affordability of solutions, which is addressed through green loans provided by the Government of Mongolia, banks and non-banking financial institutions.

With UNICEF and project partners, the project established the AgaarNeg knowledge platform accessible to all citizens, researchers, and policymakers. The platform creates access to evidence and information on air pollution and tools for awareness-raising on actions to be taken in households and childcare and healthcare facilities. The http://www.agaarneg.mn platform creates an opportunity for citizens, civil society organizations, researchers and policymakers to coordinate and synergize their actions on air pollution.

Through these innovative solutions and joint efforts, air pollution and its harmful impacts on maternal and child health can be reduced significantly. The key role here is attributed to the young Mongolians who increasingly advocate for concrete actions to claim their rights to clean air and a safe environment. Youth empowerment activities through Teen Parliament and the Scout Association of Mongolia will continue beyond SDC's support.

On behalf of the Swiss Agency for Development and Cooperation, I would like to thank the Government of Mongolia, the UNICEF Mongolia team, international research partners and my SDC colleagues here in Mongolia. We are confident that our Mongolian partners will sustain the project results and continue their efforts with other partners worldwide and in-country for clean air and healthy people. ■

[1] Traditional felt tents of nomads (yurts).
[2] The "Teen Parliament" is an initiative of the Mongolian Parliament to bring the voices of young people into decision-making.

Evariste Kouassi-Komlan

Representative
UNICEF Mongolia

Today, air pollution affects our daily work and life and limits opportunities for a safe, healthy and sustainable future. We understand that air pollution is caused by many factors: the infrastructure we build, the services we provide, and our attitude and behavior. We are increasingly aware of how to tackle exposure to air pollution and its impacts on public health.

With the contribution of the Government of Switzerland and many other donors, UNICEF implemented the Impact of Air Pollution on Maternal and Child Health project in 2018-2022. Today, we are proud to acknowledge our achievements in the fight against air pollution, which happened as a result of increased data and evidence, strengthened systems and policies, air quality and healthcare interventions on the ground, community and youth empowerment, innovations to enable coal-to-clean technology transformation such as cooking, heating and insulation products (CHIP), and inclusive financial services.

UNICEF acknowledges that the data and evidence generated through scientific inquiries, research and studies under the project have proven tremendously helpful in advocating policies and informing communities. In this regard, we highly appreciate the contributions of academic and research institutions, namely, the Mongolian University of Science and Technology, the Mongolian National University of Medical Sciences, the National Center for Public Health, Washington University in St. Louis, the University of Waterloo, the University of Pennsylvania, and the University of Birmingham, among many others. Unsurprisingly, academic collaboration between national and international universities and institutions has created new interest and is now leading to more scientific research and analysis opportunities. I also believe the young scientists and students involved in the research and studies have gained a competitive advantage in their professions and subject fields.

Young people have expanded their knowledge of air pollution and climate change and learnt critical leadership, advocacy and persuasive skills by talking to their classmates, friends, parents, teachers, citizens and decision-makers and acting in their communities. In their journey to learning, advocating, and acting, these children and young people have gained adaptation and mitigation skills—how to anticipate and overcome challenges and find alternative solutions. Three young people participated in large international events: the UNICEF Generation Unlimited event in New York City and the 27th Conference of Parties (COP 27) on Climate Change in Sharm El-Sheikh, Egypt. I believe that through such global programmes and events, they have been exposed to a global dimension of learning and various examples of youth engagement. They understand what they can aspire to and how they can better engage in climate change and air pollution actions to improve the situation.

I would like to acknowledge and commend the generous and tireless efforts of our partners in implementing the project, including the Sub-standing Committees of Parliament; the Ministry of Environment and Tourism; the Ministry of Health; the Ministry of Construction and Urban Development; the Ministry of Education and Science; the governments of Bayankhongor, Govi-Altai, and Umnugovi provinces; the Municipality of Ulaanbaatar; Bayanzurkh and Songinokhairkhan districts; the Mongolian Sustainable Finance Development Association (MSFA); People in Need; the Scout Association of Mongolia; and the private sector represented by banks, non-banking financial institutions and CHIP producers, among many others. Their important role and committed leadership have enhanced the likelihood of our success in achieving our goals.

Throughout the project's implementation, we have worked with community members, community health workers, volunteers, influencers, and members of different social groups. They never stopped working, not even during the most challenging times of the COVID-19 pandemic, reaching communities and the most vulnerable.

Looking back, I remain immensely grateful to our donors, partners, colleagues, friends and people of Mongolia who have contributed to this wonderful project towards

CLEAN AIR FOR EVERY CHILD. ■

DATA AND EVIDENCE

COMMUNICATION

AIR POLLUTION & OUR FUTURE

ONE of the biggest threats to Mongolia's future is air pollution.

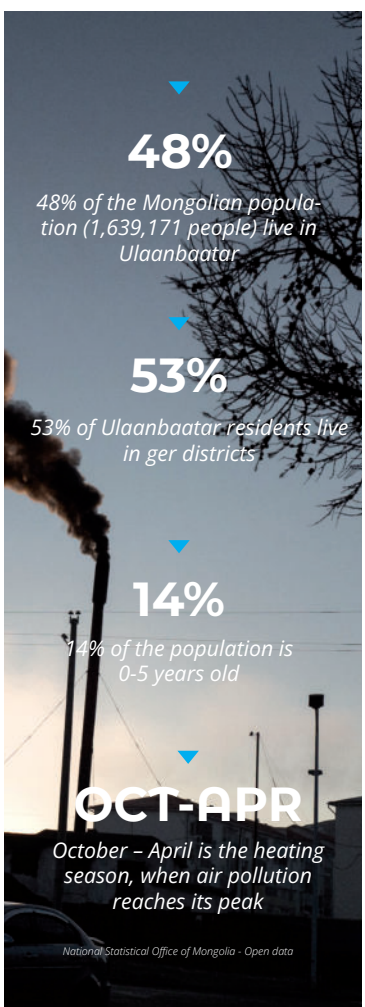
In urban settlements across the country, where 60 per cent of the population now live, air pollution can sometimes be tens of times higher than the World Health Organization's recommended levels. However, this is only one part of the picture.

Influenza, pneumonia, and other flu-like diseases have always been common during Mongolia's winter months. Sadly, however, these illnesses have drastically increased in severity due to air pollution. Currently, 300 people die each year due to air pollution-related illnesses, of which 240 are children under the age of five. This figure unequivocally demonstrates that children are the most negatively impacted by air pollution.

So what's causing this crisis? Here, in the world's coldest capital city, the household use of raw coal contributes between 70 to 80 per cent of air pollution, with traffic congestion and coal-fired heat-only boilers contributing to the rest.

The Government of Mongolia has taken considerable measures as part of the National Program for Reducing Air and Environmental Pollution—banning the use of raw coal, switching to coal briquettes, and reducing the cost of nighttime electricity. Alongside these actions, the government has also put forward additional ambitious plans and policies, but the lack of noticeable improvements demonstrates that the actions taken so far are inadequate.

Whilst these policies and plans are well-intentioned, Ulaanbaatar's air toxicity has not improved and, concurrently, the air pollution in Bayankhongor, Orkhon, Umnogovi, Khovd, and Khuvsgul's provincial centres has significantly worsened.



Stand-alone policies, no matter how sound they may be, are not enough. To bring about long-term, meaningful change, investments in independent research, accessible and reliable information, and citizen participation remain critical. It is also vital to carry out advocacy and training initiatives geared toward reducing heat loss, improving indoor air quality, and ceasing the use of raw coal.

It is here that the Swiss Agency for Development Cooperation, UNICEF, and partners have played an important role to support the government and communities across Mongolia.

The agreement between SDC Mongolia and UNICEF Mongolia to implement the four-year programme on the Impact of Air Pollution on MCH was signed on 5 October 2018. At the impact level, the programme aims to contribute to: 1) reduced prevalence of pneumonia among children under five; and 2) reduced incidence of pregnancy risks related to air pollution. The programme aims to achieve the following outcomes:

1. Improved capacity to generate and disseminate data, research, analysis and information on air pollution and MCH.
2. Preschool children and pregnant women are at lower health risk from air pollution through community-level risk reduction measures.
3. MCH risk reduction measures are integrated into relevant national and local policies.

1 *Ministry of Health, National Center for Public Health, MNUMS, UNICEF. "The Links Between Air Pollution and Childhood Asthma" study. 2019.*

SCIENCE TELLS THE TRUTH ABOUT AIR POLLUTION

For nearly a decade, air pollution has remained one of the most debated topics among Mongolia's urban residents, but reliable sources and data on how it affects the overall health of mothers and children were previously very scarce. The situation prompted the Government of Mongolia and its partners to capture a complete picture—driven by Mongolia-specific data—of the impact air pollution was having on maternal and child health to find optimal solutions to address the problem.

Building on their partnerships, a team of researchers from national and international institutions carried out compelling studies on air pollution and its health impacts: household IAQ; the monitoring of IAQ using low-cost sensors; the direct and indirect costs of absenteeism in the private sector due to air pollution; the use of the Internet of Things (IoT) and big data to quantify the outcomes and health impacts of air pollution; compound analysis of PM2.5 in Ulaanbaatar; and emission estimations for the thermal power plant and other stationary sources in Dalanzadgad soum centre, Umnugovi Province, and many other sites.

The collaboration included, but was not limited to, the National Center for Public Health, the National Agency for Meteorology and Environmental Monitoring, the Mongolian National University of Medical Sciences, the Mongolian University of Science and Technology, the University of Birmingham, Washington University in St. Louis, and Waterloo University, enabling strengthened capacity for data analysis, data exchange, joint scientific publications, and sustainable, long-term partnerships.

THE IMPACT OF STUDY RESULTS

> THE RESULTS OF THE STUDIES AND RESEARCH WERE PROFOUND AND INFORMATIVE FOR POLICY DECISIONS, PUBLIC COMMUNICATION AND ADVOCACY.

The results of the studies and research were profound and informative for policy decisions, public communication, and advocacy. In one study conducted from 2019-2020, 80 IAQ samples were collected from 33 schools, kindergartens, and hospitals in Ulaanbaatar. Researchers found that 16 samples had traces of formaldehyde and benzene present. Another 2019 study of IAQ on volatile organic compounds also showed higher levels of formaldehyde and benzene in indoor air compared to the WHO-recommended level.

The average carbon dioxide level (CO_2) in kindergartens was 1.2-2.9 times higher on weekdays compared to the Mongolian national standard.

A study on the relationship between air quality and asthma concluded that asthma occurs more in winter and during weekdays, is more prevalent among adults over

A pregnant woman's exposure to air pollution affects their unborn child's lungs and respiratory tract, leading to a high risk of premature birth, fetal death, and miscarriage.

It is observed that women who become pregnant between November and January are significantly more likely to give birth prematurely in May and August. Other abnormal side effects include:

- *Heavy postpartum bleeding;*
- *Increased abnormal fetal development;*
- *Increased complications during pregnancy and childbirth;*
- *Increased stillbirths, premature births, and lack of oxygen.*

In the first six months of pregnancy, mothers who breathe air with high levels of PM10 and PM2.5 particles are more likely to have high blood pressure, while nitrogen dioxide and sulfur dioxide in the air at 4-6 months of pregnancy have been observed to cause diabetes.

3.5↑

Fetal death is 3.5 times more common in winter than summer.

EXPERTS STUDIED THE SOURCES OF INDOOR AIR POLLUTION AND FOUND THAT PM2.5 PARTICLES GREATLY EXCEEDED THE WHO-RECOMMENDED GUIDELINE LEVELS ON MOST (82-94 PER CENT) OF THE MEASUREMENT DAYS.

40 and older women, and could be reduced by 80 per cent (five times less) if/when Mongolia achieves its target air quality levels.

The findings allowed the National University of Medical Sciences and the Mongolian State University of Education to integrate the impact of air pollution on MCH and air quality monitoring into medical, public health, and preschool education curricula.

Health complications caused by air pollution also significantly burden household finances and the overall Mongolian economy.

The burden of air pollution also extends to the private sector. During winter months, when air pollution is at its highest, labor productivity declines. The productivity phenomenon during winter months was found to be largely caused by absenteeism as employees or their children get sick, causing them to fall behind on or miss work. According to a UNICEF-led study, an employee of a private organization operating in Ulaanbaatar loses about 10 per cent of their annual income due to air pollution-related causes like absenteeism.

In 2022, building on the knowledge of the past few years, the Ministry of Environment and

40%↓

The lung function of a child who lives in a polluted area of Ulaanbaatar is 40 per cent lower than that of a child breathing unpolluted air.

33%↑

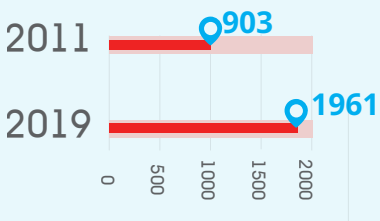
As a result of high PM2.5 concentrations, the mortality rate of children under five years old increased by 33 per cent due to respiratory diseases.

42.4%

In 2014, 42.4 per cent of children in Ulaanbaatar under 18 were hospitalized due to puncture wounds.

The adverse health effects of air pollution:

Cardiovascular diseases | *Lung disease* | *Asthma* | *Eye disease* | *Skin inflammation* | *Bronchitis*



In 2011, 903 out of every 10,000 people in Ulaanbaatar suffered from respiratory diseases. In 2019, this number more than doubled to 1,961. This significant increase is easily attributable to the rise in air pollution.

435

In 2015, 435 children died of pneumonia.

As of 2018, one in five deaths from pneumonia were children under the age of five.

Children in Ulaanbaatar are five to 15 times more likely to suffer from bronchial inflammation than children in rural and local areas.

In 2018, out of 365 days in the year, the average concentration of PM10 particles exceeded the WHO's recommended tolerance levels on 299 days and PM2.5 particle concentration exceeded recommended levels on 212 days.

38.8%

As of 2020, 38.8 per cent of all reported respiratory diseases were among children 0-5 years old.

2 National Center for Public Health. "Impact of air pollution on health" speech
3 Ministry of Health. "Air Pollution in Ulaanbaatar, its health impact". 2013.
4 National Center for Public Health. "Агаарын бохирдол эрүүл мэндэд нөлөөлөх нь" илтгэл
5 Center for Health Development, WHO. "Health indicators 2020" report. 2020.
6 National Center for Public Health, Mongolian Public Health Professionals' Association, UNICEF. "Understanding and addressing the impact of air pollution on children's health in Mongolia" report. 2016.
7 National Statistics Office of Mongolia. "Air Pollution and Health Concerns in Ulaanbaatar" report. 2019.
8 Ministry of Health, National Center for Public Health, MNUMS, UNICEF. "The Links Between Air Pollution and Childhood Asthma" study. 2019.
9 The National Centre for Maternal and Child Health, UNICEF, SDC. "Impact of air pollution on MCH desk review". 2021.
10 Center for Health Development, WHO. "Health indicators 2020" report. 2020.
11 Ministry of Health report. 2020.
12 National Center for Public Health. "Mongolia's air pollution crisis: A call to action to protect children's health" report. 2018.
13 The Government of Mongolia, SDC, UNICEF. "Costs of absenteeism due to air pollution among private sector companies in Ulaanbaatar, Mongolia" судалгааны тайлан. 2020.
14 UNICEF Mongolia, University of Birmingham. "Air pollution intervention and maternal and child (<5) health outcomes time-series study in Ulaanbaatar, Mongolia" inception report. 2021.
15 The National Center for Maternal and Child Health, UNICEF, SDC. "Impact of air pollution on MCH desk review". 2021.

Photo: Combatting Urban Air Pollution Impacts on Maternial and Child health in Asia: A Science and Policy Dialoguie, 29-30 Oct, 2019, Ulaanbaatar, Mongolia

Tourism (MoET) approved an action plan for the implementation of air pollution-related priority research from 2022-2025, providing increased opportunities for coordinated cross-sectoral research and collaboration in six thematic directions and bringing sectoral ministries and agencies together. The action plan created conditions to continue building a foundation of data through comprehensive research covering all aspects of air pollution. For instance, at the request of the MoET, the emission estimation of the coal-fired power plant and emission distribution mapping of the Dalanzadgad soum power plant in Umnugovi Province was carried out to generate new data on the source of pollutants and their impacts on health, and to recommend necessary steps and solutions to reduce air pollution from power plants.

AGAARNEG PLATFORM

Significant efforts have been made to translate scientific evidence into publicly understandable language and short, simple messages to reach out to the community and protect people from exposure to air pollution. The report "Reducing the Impacts of Air Pollution on Maternal and Child Health: Scientific evidence and key messages for the public" summarizes evidence on the health impacts of prenatal and early life exposure to air pollution, and provides key messages and communication channels to increase public awareness of health risks and strategies to reduce exposure and associated health impacts.

The AgaarNeg platform, launched in March 2021, became operational as a new platform for knowledge management and exchange, enabling better coordination of initiatives and projects, stakeholder collaboration, and transparent and open access to resources, including information on the latest projects, research reports, procurement, consultancy, calls for proposals, and news/stories. The platform's operations have been transferred to the National Committee for Reducing Environmental Pollution, ensuring the sustainability of the platform's functions and further development, and use for policy formulation, dialogues and communication. To date, nearly 50 organizations are using the platform. ■

Scan the QR code to join AgaarNeg knowledge platform

WINNING THE FIGHT AGAINST AIR POLLUTION THROUGH POLICY DIALOGUES

Combatting Urban Air Pollution Impacts on Maternal and Child Health in Asia: A Science and Policy Dialogue

29-30 October 2019

This international conference brought together 50 scientists, experts, delegates of Asian governments, international organisations from 12 countries, and over 150 national delegates. The conference participants called for an urban clean air action plan, knowledge exchange on air pollution and its impacts, and broader regional cooperation, addressed in the outcome document "Facing the rising risks: Roadmap for regional cooperation to combat air pollution and its impacts on health and development". The lessons shared and ideas exchanged at the conference set the tone for UNICEF and the Government of Mongolia to kick-off national level research priorities and university educational programmes on air pollution and health, as well as strengthening government capacities to communicate about air pollution and health.

Air pollution in the time of the COVID-19 Pandemic: Rights to a clean, safe, healthy and sustainable environment

14 December 2022

This high-level consultation meeting, organised with the Parliamentary Subcommittee on Air Pollution Reduction, led to the submission of 18 recommendations to Cabinet to reduce air pollution in accordance with the National Programme for Reducing Air and Environmental Pollution, considering the heightened and specific risks due to the COVID-19 pandemic. The WHO's Global Air Quality Guidelines require more efforts to improve ambient and indoor air quality, and countries' obligation and responsibility to protect children's rights to a healthy environment as indicated in the Universal Declaration of Human Rights and the UN Convention on the Rights of the Child.

Accelerating National Air and Environmental Pollution Reduction Policy for Transformational Impacts

24 May 2022 The conference organised with the Parliamentary Subcommittees on Air Pollution Reduction and Sustainable Development Goals recommended that the government:

- Stop using coal-fired heat-only boilers in the capital, particularly to heat kindergartens, schools and health facilities, and make immediate decisions to connect to central systems or transfer to clean energy technology;
- Increase green investments in children's institutions, services and infrastructure;
- Increase green public investment and green public procurement in infrastructure, facilities and key services for children;
- Support households from target groups to access clean and energy-efficient heating technologies through social welfare service mechanisms;
- Develop an institutional mechanism to ensure better indoor air quality and predict health risks caused by construction and building materials; and
- Introduce IAQ management at schools, kindergartens and health organizations, making it an integral part of accreditation and performance management.

Human rights and indoor air quality-Public hearing

27 June 2022

A public hearing was organised by the Parliamentary Standing Committee on Social Policy, focused on IAQ in kindergartens and schools and volatile organic compounds emitted from building materials commonly used in repair and maintenance. This high-level public hearing resulted in the recommendation of immediate government action: measures related to the control of imported building materials at the border, capacity enhancement of the state inspection laboratory, and necessary budget allocation in 2023. ■

TRANSFORMATIVE ACTIONS

SMALL SOLUTIONS LEAD TO BIG GAINS

Improving indoor air quality

INDOOR AIR QUALITY MONITORING

There were still considerable misconceptions among the public that the high levels of outdoor air pollution were a concern, but indoor air was clean. UNICEF, in close partnership with the Ministry of Health, the Ministry of Education and Science, and the National Committee for Reducing Environmental Pollution, worked to educate the public on the risks of poor indoor air quality and the adverse health effects it could bring. To do this, 80 low-cost air quality sensors were installed in 70 kindergartens and 10 health institutions. The findings from the monitoring did three things:

- The data empowered and informed parents and local leaders of the high levels of indoor air pollution in their schools and hospitals. With this knowledge, they were able to advocate for indoor air pollution reduction measures;
- Using data from the sensors, UNICEF demonstrated how to address the high level of indoor air pollution through improved ventilation systems and insulation, as well as prompt and effective actions when indoor air quality is poor; and
- The data demonstrated the need for a comprehensive approach to addressing indoor air pollution, where data collection and analysis were used not just for reporting but also to take action. As a result of this approach, the expansion of air quality monitoring within kindergartens and schools is now underway across the country.

Air ventilation system: With the support of the SDC, UNICEF developed a model air ventilation system suitable for Ulaanbaatar's weather conditions. The model was piloted in six kindergartens and three healthcare facilities: the Bayanzurkh Healthcare Center, Amgalan Maternity Hospital, and Dari-Ekh Hospital in Bayanzurkh District.

THE AIR VENTILATION SYSTEM

installed in Kindergarten No. 63 is energy-efficient, low-cost, and low-noise. The kindergarten is also heated via electricity; electric heating costs are lower than coal heating.

The newly built 24-hour kindergarten, which has a capacity for 100 children, in Gachuurt village, Bayanzurkh district, has many advanced solutions that meet national and international standards for child-friendly educational institutions.

AMBIENT AIR QUALITY MONITORING

Technical assistance was provided to the National Agency for Meteorology and Environmental Monitoring to strengthen their capacities, enable real-time measurement of PM2.5 and PM10 nationwide using low-cost air quality monitoring sensors, develop models for air pollution forecasting and mapping, and better analysis of air quality data. In this way, the geographical coverage of ambient air quality monitoring—particularly PM2.5 measurement—has been expanded nationwide. These interventions made it easier for the public, civil society, and independent researchers to access data on the levels of air pollution in their communities.

Over 150 kindergarten teachers and administrators in the Bayanzurkh and Songinokhairkhan districts of Ulaanbaatar, Bayankhongor, Govi-Altai and Umnugovi provinces were trained on indoor air quality, its measurement, and simple but effective measures to improve air indoors.

With the success of these small pilot models, the Government of Mongolia took a giant leap forward.

- The Ministry of Health approved the 2021-2024 Action Plan for Implementation of the National Environmental Health Programme, which includes improved air quality measurement to reduce adverse health effects. To support the ministry in fully realizing its plan, UNICEF committed to contributing to introducing air purification technology, increasing the use of clean fuels, reducing building heat loss, expanding the coverage of vaccines against pneumococcal or pneumonia, and many other measures.
- The Ministry of Construction and Urban Development updated and approved national codes on the building design and planning of hospitals, schools, and kindergartens based on the pilot insulation and ventilation systems demonstrated by the programme interventions. These updates to national building codes mean that tens of thousands of children will one day experience a learning or hospital environment where the air is clean and safe to breathe.

WHAT HAS BEEN ACHIEVED?

96 SENSORS

A total of 96 indoor air quality monitoring sensors were installed in 67 kindergartens and 21 health facilities.

67 locations

By installing small, low-cost air quality sensors (Purple Air) in 67 locations across the country, PM2.5 particles were measured in Ulaanbaatar and all 21 provinces.

1 monitor

A BAM 1020 PM2.5 continuous reference monitor was installed in Bayankhongor Province.

6 kindergartens

In Bayankhongor Province, one kindergarten was recognized as a benchmark for retrofitting and having an advanced mechanical ventilation system. In SonginoKhairkhan district, two new kindergartens with advanced automatic ventilation systems were built, and three existing kindergartens were equipped with advanced mechanical ventilation systems.

1,520 children

Today, more than 1,520 children aged three to five years have the opportunity to breathe clean air as their kindergartens are equipped with air ventilation systems.

Community-based maternal and child healthcare

. In November 2018, the World Health Organization issued guidelines for the work of community health workers. Community-based maternal and child healthcare (CMCH) seeks to deliver child health interventions to mothers and children by improving key family practices to better prevent illness in the home, manage illness when it occurs, and seek preventive and curative services when necessary. UNICEF rolled out an international approach to training and empowering community-based health workers in Mongolia. More than 500 community members were trained to provide primary healthcare services at the hyper-local level. The community health workers were able to provide support to thousands of pregnant women and children living in remote villages and districts.

The success of community health workers has largely been the result of how they were selected. Each health worker was chosen from within their communities and then trained and employed on a voluntary basis. This approach ensured that the community health workers would understand their local context and be familiar faces that families could trust. This approach not only aligned with the national healthcare system's efforts but also helped to make soum health centres more accessible and addressed the human resources shortage in the health sector in hard-to-reach communities.

Specifically, community health workers were trained to:

- Educate their communities on how to reduce exposure to indoor air pollution;
- Build habits for parents to seek medical help;
- Monitor and advise pregnant women;
- Prevent diseases prevalent in infants and young children through vaccine education;
- Identify early signs of malnutrition and other harmful diseases; and
- Direct families to primary care physicians when/where needed.

The community health workers' interventions have been critical in preventing diseases that commonly occur in infants and young children and providing medical care in a timely manner.

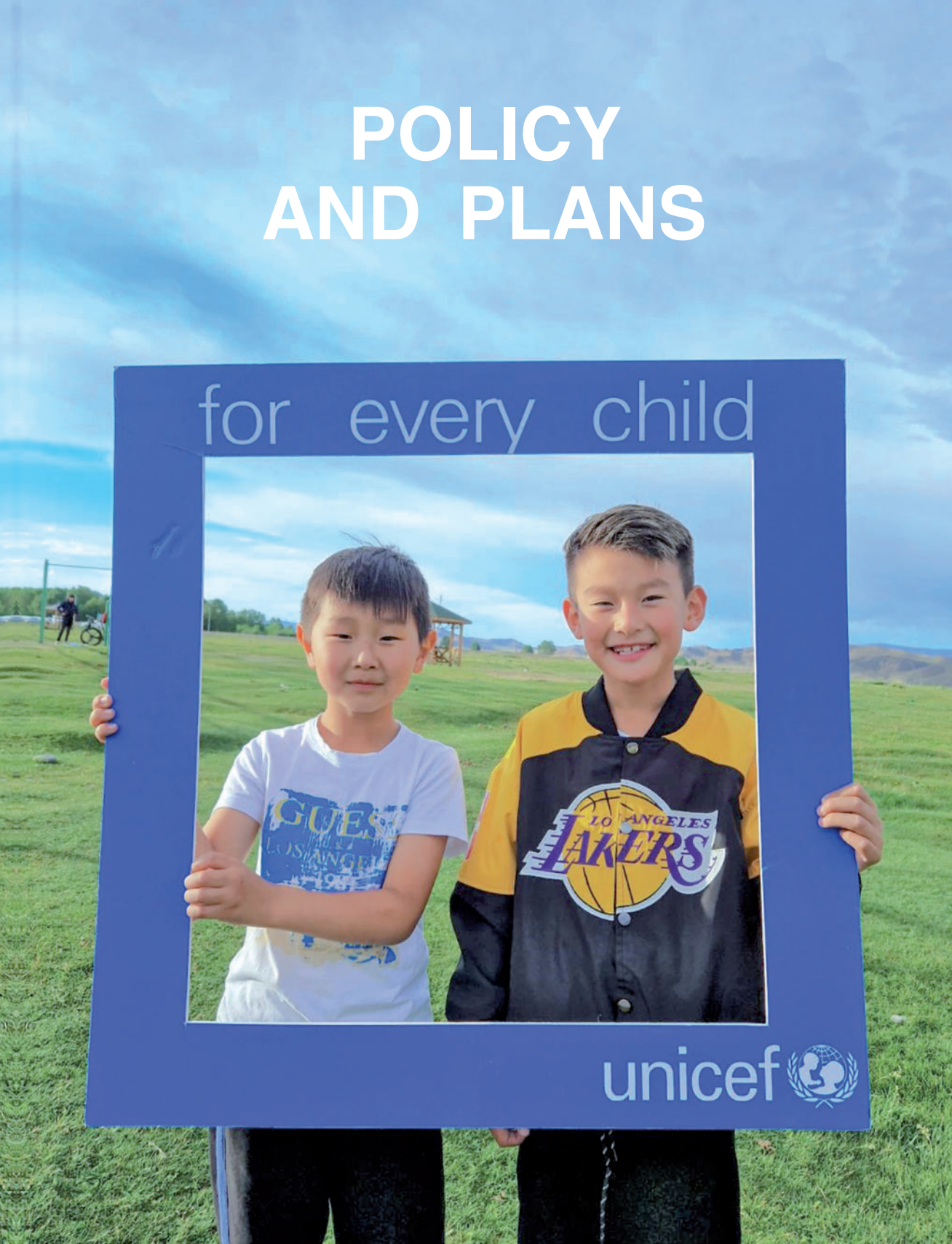
Codifying the community health workers approach, the Ministry of Health and UNICEF held a conference titled "Encouraging Public Participation in Strengthening Human Resources in the Health Sector and Sustainable Development Goals". The participants, including the district governors of all provinces and representatives from the Citizens' Representative Khural (Parliament), agreed to localize this approach across Mongolia.

"Primary healthcare is the main tool to achieve the Sustainable Development Goals and universal health coverage," said Ms. Ayako Kaino, Deputy Representative for UNICEF in Mongolia, during her speech at the opening of the conference.

"Universal health coverage means moving from a disease- and hospital-centered model to one that focuses on the citizens, and incorporating health issues within the entire life cycle of a person—not just limited to the health sector, to ensure equality."

Today, the Ministry of Health is integrating community-based maternal and child healthcare into its broader healthcare system. Thanks to UNICEF and the SDC's investments in this pilot, the ministry now believes that instead of providing healthcare only within the confines of traditional brick and mortar facilities, healthcare can, in fact, be provided via a community-to-community approach. At its core, this approach empowers citizens, local governors, district committees and other stakeholders to ensure that 'no one is left behind' and guarantees that healthcare is accessible for all.■

POLICY AND PLANS



MUCH-NEEDED CHANGES IN NATIONAL AND LOCAL POLICIES

Photo: Air pollution in the time of the COVID-19 Pandemic: Rights to a clean, safe, healthy and sustainable environment 14 December 2022, Ulaanbaatar, Mongolia

To protect the future from the effects of air pollution and reduce the economic burden to come, protecting the health of children and adolescents from air pollution should be a national policy priority.

UNICEF, in close cooperation with the Ministry of Environment and Tourism, the Ministry of Health, and local governments, with financing from the SDC and other donors, made the necessary changes in national, provincial, and local policies.

NATIONAL LEVEL POLICIES AND PLANS

- Action plan for implementation of the National Programme on Environmental Health (2021-2025);
- Action plan for implementation of Nationally Determined Contributions to the Paris Agreement 2021-2025;
- National code on hospital building, planning and design (Jan. 2021); National code on school building design (2022); National code on kindergarten building design (2022);
- State green loan for CHIP in 2020 (eight per cent interest rate loan released by three commercial banks) and in 2022 (the interest rate was lowered from eight per cent to three per cent);
- The priority research themes and the action plan for the implementation of air pollution-related priority research, 2022-2025; and
- Mid-term environmental policy through 2030 (submitted to Parliament).

SUBNATIONAL LEVEL POLICIES AND PLANS

Cooperation with provincial and local governments has been instrumental to the success of this work. For instance, the Clean Air Action Plan, which was developed and implemented with technical assistance from UNICEF and the Bayankhongor Provincial Government in 2019, became the basis for implementing similar programmes in Umnugovi and Govi-Altai provinces. Notably, the Bayankhongor, Govi-Altai and Umnugovi province administrations budgeted 1.25 billion MNT for implementation. For the Bayanzurkh and Songinokhairkhan districts for air pollution reduction activities, air quality monitoring, and CHIP project rollout, 370 million MNT was budgeted.

- Bayankhongor Province Clean Air Action Plan 2019-2022
- Umnugovi Province Clean Air Action Plan 2021-2024
- Gobi-Altai Province Clean Air Action Plan 2021-2024

Approval of these national and subnational-level policy and planning documents has led to increased state and local budgets to reduce air pollution and its impacts on maternal and child health.

FEASIBILITY OF LOW CARBON TECHNOLOGY FOR PUBLIC BUILDINGS

The technical and economic feasibility study on transforming coal-fired heat-only boilers to ground source heat pumps for kindergarten, family health center and bag administrative buildings is ongoing in Bayankhongor Province. When realized, this solution will significantly reduce greenhouse gas emissions, improve air quality and reduce waste from coal burning.

COOKING, HEATING AND INSULATION PRODUCTS – CHIP PACKAGE

The government's policy to introduce improved/refined coal to households and increase the use of electricity for heating was relatively challenging for urban households using traditional heating technologies, including 91,249 ger households in Ulaanbaatar. Although various air pollution reduction technologies have been introduced internationally, they are rarely suitable for Mongolia's climate, where winters are as cold as -45 degrees Celsius.

However, the introduction of CHIP, an innovative system for Mongolian ger insulation, heating, and ventilation, in cooperation with the School of Civil Engineering and Architecture of the Mongolian University of Science and Technology, local governments and People in Need INGO, became a very suitable, energy-efficient, affordable and practical solution for Mongolia's situation. An external evaluation by the Swiss Tropical and Public Health Institute (TPH) praised the results and implementation of the project and concluded that it contributes greatly to social and gender equality. This is because CHIP users not only save money but also save more than 40 minutes a day.

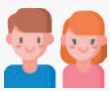
In addition, this reduced the amount of indoor PM2.5 and PM10 created by burning raw coal, which releases toxins such as sulfur dioxide, carbon dioxide and carbon monoxide. These toxic chemicals harm the health of children already growing up in an environment with high nutritional and drinking water risks.

At present, 1,676 households in six provinces and Ulaanbaatar, 11 kindergartens have solved their heating and air quality challenges by using CHIP. This not only helped them to live comfortably during the cold season but also helped reduce the risk of children being exposed to household burns. This transformation to clean technology has benefited the entire population of the provincial centres and Ulaanbaatar, totalling 1,718,380, or 72.6 per cent of the households living in Mongolia's urban areas.

CHIP package: Air filters placed in the door.

CHIP users by population groups

Number of household member



3088
2832

Children under 5 years old

443
422

Number of children 6-18 ages

733
731

People with disability

68
95

Pregnant women

36

Elders

456
286

Single parents

236
121

T. Rys with grandchildren, CHIP package user family of Bayanzurkh district
Photo credit: People in Need Mongolia NGO

INCLUSIVE CHIP FINANCING SCHEME

CHIP is financed through a blended financing scheme: a subsidy from local government and project funding, green loans subsidized either by the government (the Ministry of Environment and Tourism) or non-banking financial institutions, and personal investment. Taking the results of the CHIP project into account, the Government of Mongolia agreed to provide green loans with a below-market interest rate of three per cent per annum to households interested in the package. This was an important decision to protect the health of 2,367,364 (2021, NSO) people living in Ulaanbaatar and other urban areas from air pollution.

The subsidies cover 50-70 per cent of the total CHIP price. The government's green loans are released nationwide through Khan Bank, Xas Bank, and State Bank of Mongolia. In addition, the private sector has contributed its own resources: Ulaanbaatar Investment and Management invested 80 million MNT in non-banking financial institutions (NBFIs) to provide loans for CHIP and Numur, Transcapital, GSB Capital and NET Capital NBFI's provided green loans for families This approach ensures CHIP's long-term sustainability. To date, 198 families have received green loans for CHIP packages.

The implementation of the project was delayed due to unavoidable external challenges, such as the closure of the Chinese border and the bans and restrictions caused by the COVID-19 pandemic. However, these challenges did not prevent the implementation of this project, which has become a centerpiece of national and local efforts to combat air pollution.

DATA

3%[15]

Commercial banks in Mongolia offer loans to citizens with a 15 per cent interest rate, but for CHIP, thanks to green loan programs, they have been reduced to a three per cent annual interest rate.

Twice lower interest rate:[16]

Loans from NBFIs have an average interest rate of around 38 per cent . The MSFA has worked closely with NBFIs to provide green loans at 18-21.6 per cent interest.

30 months

Green loans are issued by commercial banks and NBFIs for a period of up to 30 months.

INNOVATION DRIVE FOR CLEAN AIR

Stay warm, safe and healthy through the winter

I have five children. The little ones were at high risk of being burned because of the stove. I made a wooden gate to protect my kids from the stove, but it was too difficult for me as a visually impaired person; I would've fallen over it. Therefore, I was looking for electric heaters. I first learned about the CHIP packages for the Mongolian ger from my khoroo office and I have been using it since November 2021.

> "I AM BUYING THE CHIP PACKAGE FOR MY PARENTS THIS WINTER WITH A GREEN LOAN."

It helped me a lot that the CHIP package was three times cheaper than the same type of products, and it was possible to get a loan. Now, we are not making a fire to heat our ger, but it's really warm. In September 2022, when the weather got cold, we turned the heaters on for a long time, but the cost of electricity was only 78,000 MNT. It shows that the expenditure of using the CHIP package is cheaper than burning coal.

The CHIP heating package has a thermostat that automatically adjusts the temperature. It turns off when the ger's indoor air temperature reaches 30 degrees Celsius and turns back on when it approaches 20 degrees Celsius.

The CHIP heating package is installed on a cabinet and has an outlet for electric appliances. Most electric heaters make the indoor air too dry and it dries out a person's throat, but this heater does not. The ventilation system is perfect. Heat loss is low because the door and top opening insulation are designed precisely according to the size of the Mongolian ger.

Although there was much rain in summer and autumn, it was not uncomfortable thanks to the CHIP package. The bottom of the wall has insulation that is 20 cm high, so rain or dirt doesn't get inside. I am buying the CHIP package for my parents this winter with a green loan.

B.MUNKHJARGAL

A CHIP user in 16th khoroo, Bayanzurkh District

WHAT'S DIFFERENT ABOUT CHIP ?

Thermostat to control electric heater

Electric heating package

The Mongolian ger is a round, tent-like structure with one large room with a heating area of 28.5 m2. A stove is located in the centre, fired by solid fuels such as raw coal, firewood and briquettes.
The incomplete combustion of coal in low-efficiency stoves is one of the major causes of air pollution and per capita GHG emissions. On average, a household living in a ger uses approximately 3-4.5 tons of coal and 1.0-2.5 m3 of wood during the heating season. The heat loss is enormous in a ger.

> WITHOUT CHANGING THE GER'S STRUCTURE AND SHAPE, CHIP OFFERS THREE PACKAGES WITH SOLUTIONS: AN INSULATION PACKAGE, AN ELECTRIC HEATING SYSTEM WITH A THERMOSTAT, AND A VENTILATION SYSTEM.

Extra layers of insulation:

A CHIP ger demonstrates improved insulation by utilizing synthetic textiles—a thick tarp-like, durable, and dense material with a middle layer of recycled insulation—to better hold in heat and block external wind. Heat loss through a joining point between the floor and wall is reduced as it is covered with this synthetic insulation, eliminating energy losses. The material used for this measure is recycled felt that can be found in the local market.

Electric heating:

Three electric heaters with a capacity of 0.8 kW are attached to a wooden box and face each side of the ger, located in the center of the ger to transmit heat equally to all parts of the home. The electric heaters are monitored with an automatic thermostat. Accordingly, the heat spreads evenly throughout the ger while reducing the heat loss between the floor and walls.

Air filter and ventilation:

The air filter is placed on the door, and the exhaust air opening is attached to the top opening of the ger. As a result, the system constantly circulates air.

DATA

1,676 households and 11 ger kindergartens:

CHIP packages have already been installed in 1,676 households and 11 kindergartens and 12 schools across Bayankhongor, Govi-Altai, and Umnugovi, Orkhon and Dundgobi provinces, and Bayanzurkh and Songinokhairkan districts in Ulaanbaatar.

Automatic setting:

When the temperature inside the ger drops and reaches a certain level, the electric heater automatically turns on and off, thanks to the introduction of a thermostat.

3 - 4.5 tons of coal removed

CHIP-user households no longer burn 3-4.5 tons of coal or a large amount of wood during the heating season.

Burns:

The risk of burns caused by firing a stove was nearly eliminated.

90%

Ninety per cent of CHIP users agreed that CHIP improved their gers' indoor air quality, and 89 per cent of respondents said that air intake fans are safe for their health and comfort.

56,000

A CHIP-using household spends 56,000 MNT less than a household that heats their ger with a traditional stove in the winter.

40-90 minute

On average, CHIP-using households save approximately 40-90 minutes per day. An external evaluation found this was very beneficial, especially for women.

WHAT CANNOT BE MEASURED CANNOT BE MANAGED

Real time measurement of air quality

Since 2011, I have been working on different projects aimed at measuring air quality in Mongolia and studying how air pollution affects the human body. Air pollution measurement in Bayanzurkh District and Bayankhongor Province, in cooperation with UNICEF, is the third project I've participated in. We completed

> *"IT IS IMPORTANT FOR CITIZENS TO RECOGNIZE AND USE THE RESOURCES OF ALL LOW-COST MEASURING DEVICES."*

air measurements in a total of 29 kindergartens and six health centres with low-cost air quality monitoring sensors. However, PM10, PM2.5, and carbon dioxide levels were higher than expected.

For example, the city center gardens are located close to each other, but the indoor air quality is different. This is due to the different sources of air pollution.

For example, the research showed that indoor air quality depends on many factors, such as the number of children exceeding capacity, the building's insulation, the building's structure, the materials used, whether the building is old or new, and so on.

Regarding outdoor air pollution, PM2.5 and carbon monoxide levels vary at different times of the day. By continuously measuring for 24 hours, we know how much air pollution there is at a certain time of the day and what the main sources of pollution are. By then making the hourly data available to the public, any of us can get air quality information at any time.

Currently, UNICEF has installed small air quality sensors in 67 locations across the country, and it is commendable that our air quality measurement network continues to expand.

This winter, working in collaboration with the National Agency of Meteorology and Environmental Monitoring, it is able to measure air pollution in more provinces. Above all, it is important for citizens to recognize and utilize the availability of low-cost measuring devices. ■

JAY TURNER

Professor at
Washington University
in St. Louis, Missouri,
USA

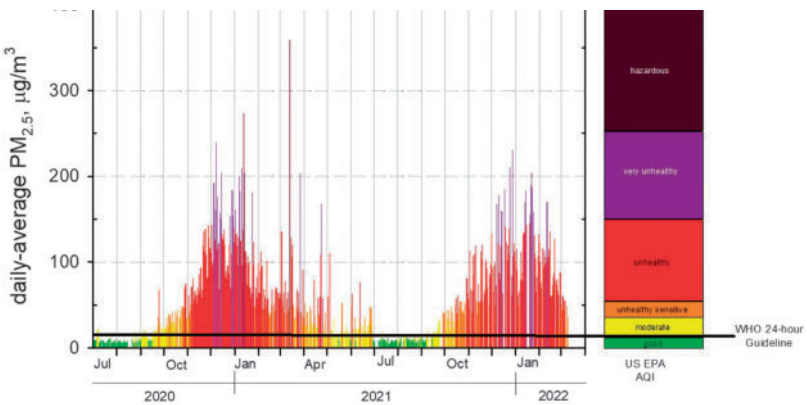
REAL-TIME MEASUREMENT OF AIR QUALITY

One of the significant measures carried out within the framework of the Reducing the Impacts of Air Pollution on Maternal and Child Health programme is the creation of a system for the 24-hour, continuous measurement of indoor and outdoor air pollution, and the subsequent development of solutions for combatting air pollution based on actual research and statistics.

Air pollution measurements and research were also carried out in cooperation with UNICEF and the National Agency for Meteorology and the Environmental Monitoring, led by Professor Jay Turner of WUSTL and B. Munkhbayar, director of the Building Energy Efficiency Center of the Mongolian University of Science and Technology. They installed a BAM 1020 air quality monitoring reference station in the centre of Bayankhongor Province, which measures and reports PM2.5 particles every hour to measure outdoor air pollution. They also organized training for local experts on operating the air quality monitor. The monitor records the amount of fine PM2.5 particles, and the collected data is uploaded to the http://w.tsag-agaar.gov.mn/ website in a way the public can understand.

"The amount of fine particulate matter or PM 2.5 in Ulaanbaatar city air is 40 to 50 times higher than the tolerance limit set by the World Health Organization (WHO) in winter."

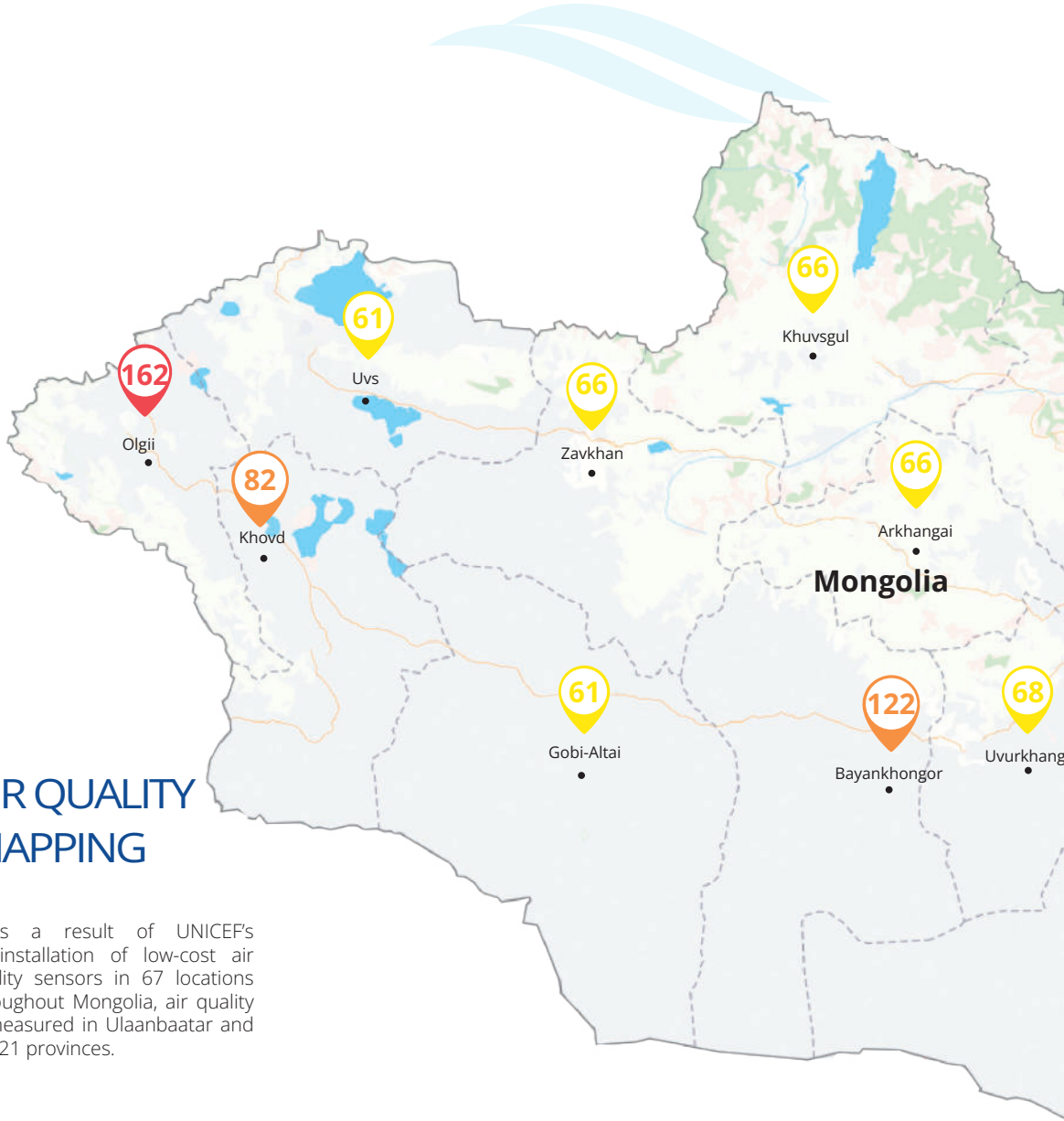
Bayankhongor, July 2020-February 2022



Orange box: What is the importance of regularly measuring ambient air pollution?

- *Recognizing the most polluted time of day*
- **PM2.5** — *Citizens monitor air quality and pay attention to reducing exposure to air pollution*
- *Planning air pollution abatement measures*
- *Developing air pollution prediction models*
- *Decision-makers will take effective measures for target groups*

GOOD 0-50
MODERATE 51-100
UNHEALTHY FOR SENSITIVE GROUPS 101-200
UNHEALTHY 201-300
VERY UNHEALTHY 301-400
HAZARDOUS 401-500



AIR QUALITY MAPPING

As a result of UNICEF's installation of low-cost air quality sensors in 67 locations throughout Mongolia, air quality is measured in Ulaanbaatar and the 21 provinces.

GRAPHIC /AIR QUALITY INDEX/

0-50	51-100	101-200	201-300	301-400	401-500
Good	Moderate	Unhealthy for sensitive groups	Unhealthy	Very unhealthy	Hazardous

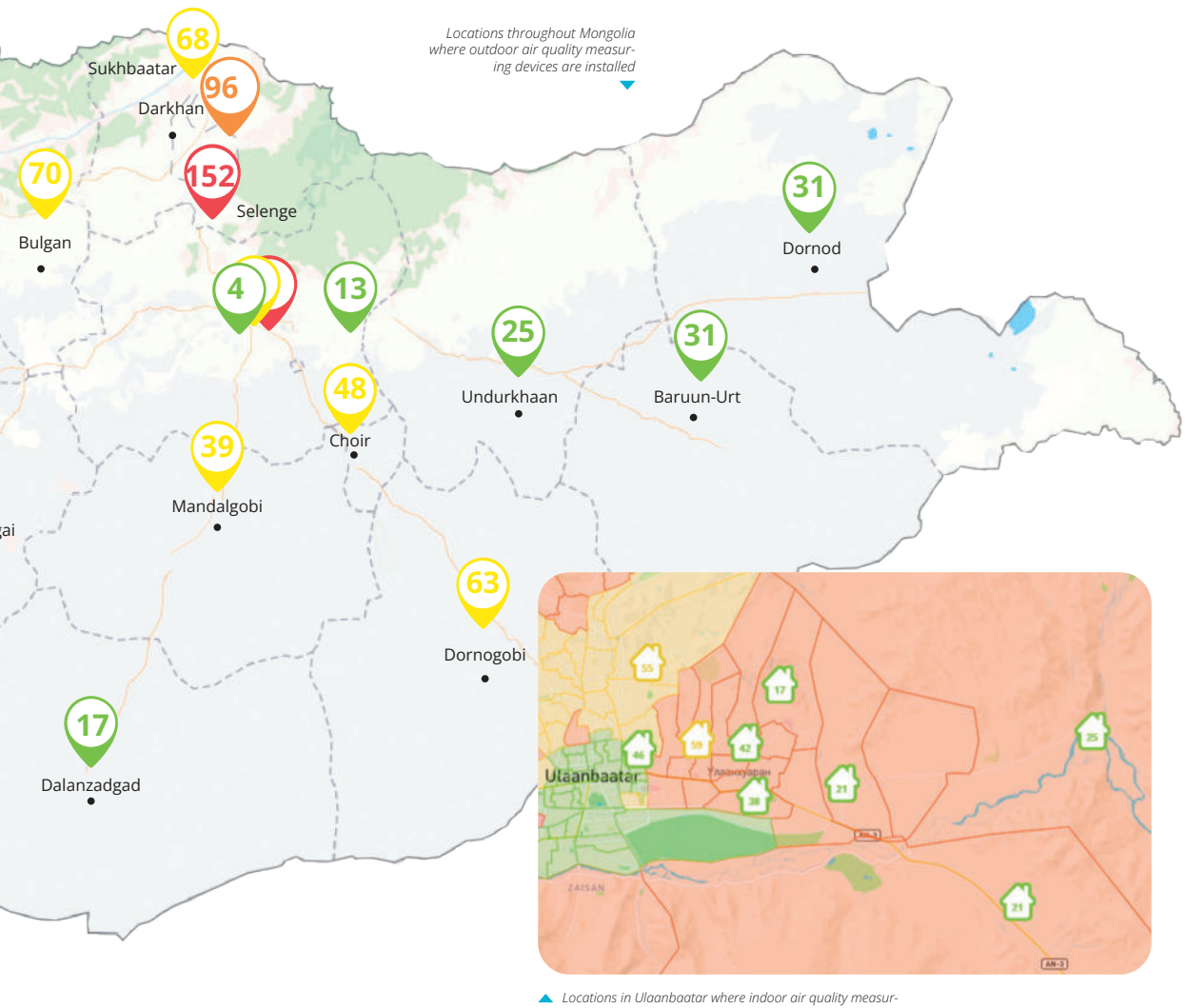
Locations where outdoor air quality measuring devices are installed

Locations where Indoor air quality measuring devices are installed

Territory: *1.564.116 square kilometers*

Population: *3.409,939 (NSO,2021)*

Capital of Mongolia: *Ulaanbaatar*



Locations in Ulaanbaatar where indoor air quality measuring devices are installed

Scan the QR code to find out today's air quality.

COMMUNITY-BASED HEALTHCARE SERVICE

Leaving No One Behind

G.Buyantsetseg has worked at a hospital her entire life. When she retired, she still loved every bit of her job. In fact, she really missed it.

"When UNICEF announced a project to train volunteers to provide health advice and services, I enrolled in training immediately. I started working here at the family healthcare center," Buyantsetseg recalled.

Although Buyantsetseg spent her life in the healthcare sector, she was still nervous, as it is often rightly assumed that to volunteer at a hospital, one must gain in-depth health education and what to consider when providing care.

To help get Buyantsetseg and the other community health workers up-to-speed, Dr. Sh. Oyukhuu provided training and shared invaluable knowledge and experience with the trainees.

After training with Dr. Oyukhuu, Buyantsetseg gained more confidence.

"We were mobilized to take care of pregnant women and newborns, and answer questions from local residents over the phone during the peak of the COVID-19 pandemic, during the lockdown and when the lockdown was relaxed. To this day, I enjoy doing this work," she said.

It's not only medical professionals and volunteers who have been involved directly in the programme but also local residents.

Many of the trained community health workers are ready and eager to lend a helping hand—day or night.

"The volunteer hotline can ring at any time of the day. Most of the registered calls are requests for assistance from people whose children have caught a cold or pneumonia," said Buyantsetseg.

The community health workers also provide information on preliminary test results for early detection that are covered by health insurance. ■

G.BUYANTSETSEG

A volunteer at Eruul Orshikhui Family Healthcare Center in the 32nd khoroo, Bayanzurkh District

REACHING THE UNREACHABLE

It is vital for everyone to receive quality healthcare services when they need them, regardless of where they live. In particular, the need to provide adequate health services to Mongolia's remote khoroos and soums continues to grow. Primary care services should focus on leaving no one behind by adopting strategies that target vulnerable and abandoned population groups.

When the Reducing the Impacts of Air Pollution on Maternal and Child Health programme started, human resources in Mongolia's health sector were under active discussion. Staff shortages, particularly in remote communities, were a growing concern. Many believed that community participation within primary care could have a profound impact on Mongolia's health system. But, 'how' to do it was a puzzle.

Since then, the introduction of the community health workers initiative has become a transformative approach to addressing the human resource challenges within the health sector, filling the gap with their support, enthusiasm, and active engagement. Many countries have been recruiting community health workers in accordance with their socio-economic conditions, and Mongolia has now joined this practice.

Community health workers that complete special training are able to provide basic health advice and services. These are essential roles that enable households to continue receiving basic health services, particularly those living in remote areas that are far from urban settings, difficult to reach, are not registered within their district, or are internal migrants.

In addition to supporting families in their khoroo or bagh communities by monitoring pregnant women, preventing diseases that commonly occur in infants and young children, and helping to ensure prompt access to hospital services, many community health workers are also helping to eliminate social discrimination.

> *IN 2020, A TOTAL OF 106 CITIZENS WERE SELECTED AND START-ED THE TRAINING TO WORK IN GROUPS OF 5-6 IN THE MOST REMOTE AREAS OF THE BAYANZURKH DISTRICT.*

The pilot phase of the community health worker training project, which began in 2019, started with training specialists in 18 khoroos in the ger areas of Bayanzurkh District. A training room for the district's community health workers was furnished and equipped.

Even during the COVID-19 lockdown period, community health workers participated in four comprehensive online training sessions. As a result of the programme's constant counseling and support, these community health workers helped immensely by filling in the gaps at primary healthcare centers during the pandemic, often giving advice to residents over the phone and contacting patients' family members during difficult times.

Through the project, 545 community health workers were trained, and primary health advice and services are provided regularly in Bayanzurkh District and in Bayankhongor, Govi-Altai and Umnugovi provinces.

United to support others, community health workers—outfitted in blue vests—are dedicated to helping people living in remote soums and districts access timely health services. They have been trained to help others, devoting their time and care to the betterment of their community's health.

Community health workers continue to be celebrated and praised by primary healthcare center doctors and nurses for their enormous support.

Photo by UNICEF, 2020

"COMMUNITY HEALTH WORKER TEACHER" APPLICATION

The Community Health Worker Application, launched in 2022, is now widely used by community health workers in their daily work. It contains all types of information about what recommendations to give and how to provide basic healthcare to infants, young children, and pregnant women.

New recommendations have been added to the "Maternal and Child Health Book", which is the primary tool for child development assessment and early detection. In addition to providing recommendations on how to take measures at home if a child has symptoms of severe illness requiring calling an ambulance or going to the hospital, a special section has been added on diagnosis, treatment, recording of children's health, and the prevention of exposure to air pollution.

CHW application – Cover page and corner of the function.

Community health workers are teaching and advising parents on how to update this book correctly and know their child's health status early.

Photo by UNICEF, 2020, COMMUNITY HEALTH WORKERS TRAINING

> *When I look at our community health workers, they are truly altruistic angels who care for people like their own children, parents, and siblings. I am proud and grateful for their humanity and compassion. UNICEF's implementation of this project established a much-needed foundation in our country's health sector. It became a practical experience that can be supported and operated by our government. I would like to express my sincere gratitude to community health workers, project implementers, and all other stakeholders for making miracles happen.*

Doctor Sh. Oyukhuu, consultant for preparing the "Community Health Worker" project of UNICEF:

DATA

2018.11.26

The World Health Organization issued guidelines for the operation of CHW (Community Health Workers)

128 health-care centers

Community health workers are currently providing information, advice, and care assistance in 128 family healthcare centers in Bayanzurkh district of Ulaanbaatar and 4 provinces.

5 locations

135 training facilitators from all soums of Bayankhongor, Govi-Altai, Umnogovi and Zavkhan provinces and Bayanzurkh district of Ulaanbaatar were equipped with the knowledge and skills to train CHWs.

521 CHWs

The trained community health workers are currently providing service to local communities.

Community health workers are providing service to:

87,650 *children aged between 0 to 5*

12,531 *pregnant women*

YOUTH CANNOT WAIT FOR KEEPING SKIES BLUE AND CLEAR

Though the reality of air pollution facing Mongolia is dim, there's also hope in future.

I am a 2021 graduate of the Teen Parliament project implemented by UNICEF in partnership with the Parliament of Mongolia.

Thanks to this valuable project, I became aware that our earth needs the care and support of children and youth. I've just arrived in vibrant New York City after traveling from Govisumber, the tiniest province in Mongolia.

I am representing my country, my peers, and the Teen Parliament programme at UNICEF's Generation Unlimited conference in New York. As with Legos, a set cannot be completed if one piece is missing. I would like to urge every single person at the conference to safeguard the environment.

I am the youngest among the young people at the conference from around the world. "You're only 16 years old? Aren't you brave for coming here by yourself?" The question is encouraging and reminds me that there are opportunities for all young Mongolians.

As soon as I got off the plane, I learned a phrase I had never heard before, 'jet lag', which refers to a time difference and changes in sleep schedule. I came to the realisation that you may learn new words and phrases without memorizing them right away or consulting a dictionary; instead, you can learn a word from its context in a sentence and use it in conversation.

The conference coincided with the UN General Assembly. I went to urge all countries to realise that we need each other.

The main reason I was chosen for this conference is that I act and advocate to reduce pollution in my neighborhood and schools, and I am passionate about a better environment. Also, my English is good enough to communicate with other young people and express myself. So, being a student in a remote area doesn't limit opportunities, and I believe children who put in the effort will have access to endless opportunities.

This year's Generation Unlimited conference included a wide range of topics, but the ones that caught my interest included those related to the environmental rights of children, children's right to an education, and mental health. Due to the COVID lockdowns, people are experiencing psychological issues and feelings of loneliness. Mental health education is crucial for everyone's recovery.

O.MUNGUNZUL

11th grade student from the Govisumber province of Mongolia

EMPOWER YOUTH ADVOCACY FOR CLEAN AIR AND CLIMATE CHANGE.

DATA

1,015,250 people

20 Days of Activism content on air pollution and climate change was developed and delivered to 1,015,250 people across Mongolia.

11,600 KM

The "20 days of activism" was organized to encourage children and young people in their communities across Mongolia to learn, share, and directly engage with local leaders on issues concerning them on the environment and climate change.

60,000

children and youth

More than 60,000 children and youth were directly engaged and informed about air pollution and climate change.

158,641 people

In 2021, a three-day youth summit on "Climate Change Through the Eyes of Children and Youth" was organized online, reaching 158,641 people.

90 days

Approximately 4,000 air pollution measurements were taken over a 90-day period.

8,894 particpants

In order to increase the membership of the "YOUCCAN" network and expand the scope of activities, an online mobilization drive was organized. In total, 8,894 children and young people directly participated.

Source: The "Children and Youth Advocate for Climate Change and Clean Air" Project Report, 2021.

There are 1.2 billion young people aged 15-24 worldwide, making up 16 per cent of the global population. As climate change becomes an urgent issue for everyone in the world, children and young people are increasing their activism. The children and youth of Mongolia are also united for a future that is sustainable and free from toxic air pollution. In Mongolia, with support from UNICEF and the SDC, tens of thousands of children and young people have engaged with the Youth for Climate Change and Clean Air Network (YOUCCAN), Teen Parliament, and Serser.mn, a platform for children and youth to evaluate the implementation of climate policies. These youth networks continue to unite young people by expanding their social circles and meaningfully engaging them in productive activities.

YOUCCAN

YOUCCAN - Youth for Climate Change and Clean Air Network

IN 2019, UNICEF and the Scout Association of Mongolia established the Youth for Climate Change and Clean Air Network (YOUCCAN). Subsequently, in 2019, as a part of the 30th anniversary of the Convention on the Rights of the Child, the 6th National Jamboree of the Scout Association of Mongolia was organized. With more than 1,000 participants in attendance, YOUCCAN members and UNICEF delivered lessons and information on how climate change and air pollution impact our lives. To this day, UNICEF and the Scout Association of Mongolia continue working collectively to advocate for children and young people's rights to participate in decisions that will affect their future. About 9,000 children and young people from all over Mongolia have joined YOUCCAN.

For tens of thousands of Mongolian households affected by air pollution, drought, desertification, forest fires, and other climate-related issues, this film highlights the fact that climate change is not distant news but a reality today. The film was shared with an international audience during COP 26 in Glasgow, Scotland, and even shared on social media by world-renowned journalist and author Naomi Klein.

Scan the QR code

TEEN PARLIAMENT INITIATIVE

platform for youth engagement

Teen Parliament was initiated by UNICEF and the Parliamentary Subcommittee on the SDGs. The initiative is a gathering of Mongolian adolescents and young people empowered to advocate for climate action and the achievement of the Sustainable Development Goals.

"On the issue of climate change and air pollution, I first implemented a micro-project as part of Teen Parliament, but now I am happy to contribute to solving this problem on behalf of the children and youth of Mongolia," said M. Garid, president of the National Children's Council of Mongolia, member of Teen Parliament 2021, and youth delegate from Mongolia at the 27th Conference of Parties (COP) on Climate Change held in Sharm El-Sheikh, Egypt. Heads of state, politicians, diplomats, civil society representatives, activists, thought leaders, and members of the media and the public—including children—from the 198 signatory countries of the United Nations Framework Convention on Climate Change (UNFCCC) joined COP 27 to work out policy measures, constructive agendas, and collective efforts in battling climate change and various climate-related problems.

Young people like Garid who join Teen Parliament gain knowledge about the SDGs, the universal rights of children, climate change and air pollution, democracy, human rights, and lawmaking and the decision-making process.

"Participating States shall ensure that children who are capable of forming their own opinions have the right to freely express their opinions on all matters concerning them, and shall give due weight to their opinions, taking into account the child's age and maturity."

Teen Parliament also provides opportunities for children and young people to raise their voices and increase their participation in the process of initiating, developing, and implementing laws. Garid was one Teen Parliament member that was never shy to express his frustration about growing up in the polluted city of Ulaanbaatar.

The Teen Parliament initiative continues shaping and supporting young people like Garid to hold the Government of Mongolia accountable to their global climate commitments and empower a new generation of climate-sensitive young leaders.

"I spent my childhood in the winter of Ulaanbaatar, full of smoke and soot, and it was difficult to even see the road ahead. As a result, not only me, but the health of every child and person is affected by years of toxic air pollution," **said Garid.**

SERSER.MN

A platform for children and youth to evaluate policy implementation

By using this online platform, children and young people can find information about the environment and climate change, expand their knowledge, and evaluate the progress of key policy commitments.

CHRONICLE

2021 Aug 26 – 2021 Sep 25

The Teen Parliament selection process was held online across Mongolia, with 907 applications received.

2021 Oct 02

The programme's opening ceremony was organized.

2021 Oct 02 – 2022 May 15

For 12 weeks, the participants attended classes on the topics of parliamentary education, climate change, the SDGs, healthy food and a proper diet, and personal development, and also engaged in advocacy work.

2021 Nov 08 and 2022 May 05

The members conducted advocacy work on two topics, 'Climate Change' and 'Healthy Food and Healthy Future', with participants from the 21 provinces and the districts of Ulaanbaatar.

2021 Aug 26 – 2022 May 15

Teen Parliament content reached 274,101 people.

2022 May 11–14

The closing ceremony for Teen Parliament 2021 was held in Ulaanbaatar.

2022 Sep-Oct

Teen Parliament 2022 was announced, focusing on sustainable energy, and parliamentarians were selected.

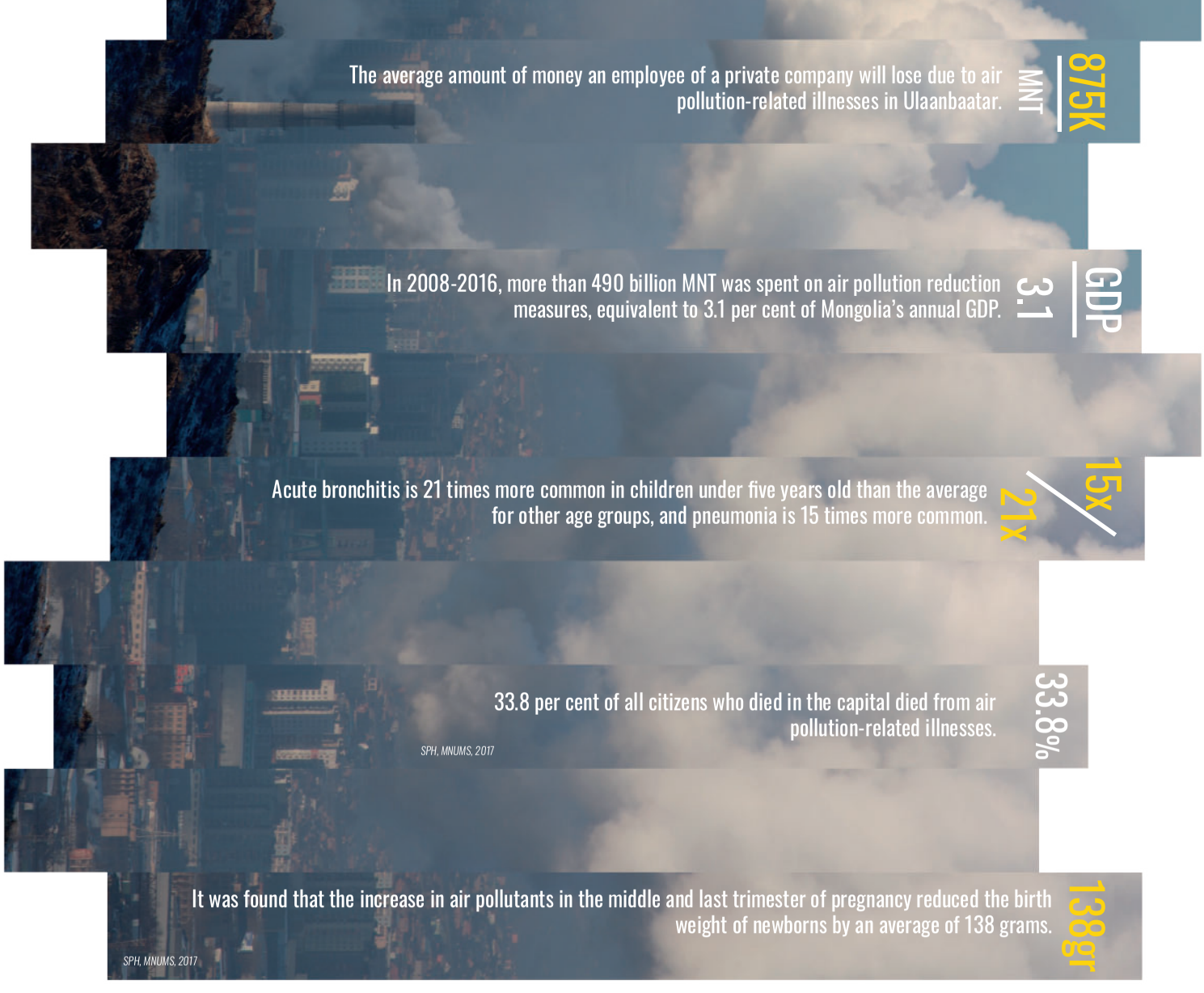
2022 Nov 05

Teen Parliament 2022 launch event was organised.

Source: Activity report on Youth Parliament program, UNICEF

FACTS ABOUT AIR POLLUTION

Air pollution has long been a headache for Mongolians. The fact that Ulaanbaatar is the coldest capital in the world, more than half of the population lives in the capital city, and coal and briquettes are the main source of heat for residents living in the ger districts makes Ulaanbaatar one of the cities in the world with the most air pollution. Let's take a look at the numbers to prove how much secondhand smoke affects our health:


The average amount of money an employee of a private company will lose due to air pollution-related illnesses in Ulaanbaatar.
875K MNT
In 2008-2016, more than 490 billion MNT was spent on air pollution reduction measures, equivalent to 3.1 per cent of Mongolia's annual GDP.
3.1 GDP
Acute bronchitis is 21 times more common in children under five years old than the average for other age groups, and pneumonia is 15 times more common.
15x / 21x
33.8 per cent of all citizens who died in the capital died from air pollution-related illnesses.
SPH, MNUMS, 2017
33.8%
It was found that the increase in air pollutants in the middle and last trimester of pregnancy reduced the birth weight of newborns by an average of 138 grams.
SPH, MNUMS, 2017
138gr

LEADERSHIP FOR TRANSFORMATIONAL CHANGE

When I returned to Bayankhongor Province after graduating from university in 2011, air and soil pollution had already become a problem. At that time, I didn't know what to do to stop or prevent it, but with time I gained a lot of experience working in the private sector and for state organizations to develop the community.

In 2019, I was elected to the Bayankhongor's Citizens Representative Khural (Assembly), and appointed Bayankhongor's Deputy Governor. That's when I started to work on the UNICEF-SDC financed clean air initiative. For the last three years, we have been working to reduce the impact of air pollution on the health of mothers and children, and I am the secretary of the working group.

I want to reflect on energy-efficient and affordable CHIP. Bayankhongor had 9,679 households when we started implementation in 2019. Of these households, 68.6 per cent (6,639) lived in a traditional Mongolian ger. The provincial government saw the potential in CHIP and made it their goal to transition 20 per cent of all ger households CHIP users within the next four years.

As of today, the provincial government is halfway there, reaching 10 per cent. But it wasn't easy at first, there were even some doubts. When it came to replacing the traditional coal-burning fireplace with a CHIP package, people rejected it due to its purchase price and increased electricity costs for the heater.

Families who started using CHIP told me that it took some time to get used to. But, from the second year of having CHIP technology, they were able to live comfortably and got used to it. In the past, our children used to wait for an hour until the coal burned hot enough to warm the home. They used to sit with their coats on after coming home from school and kindergarten. After solving this issue by using [CHIP], this problem was easily solved.

We are already seeing improved children's health in their community and finding that cases of respiratory diseases have reduced significantly. More than a decade ago, a PM2.5 measuring device was placed outside the U.S. Embassy in Ulaanbaatar. Today, there is one in our province, with the help of the SDC, UNICEF and Professor Jay Turner from WUSTL. Since then, we've been able to accurately calculate air pollution in real time. With this, our provincial meteorology staff have learnt a lot through online and in-person training. Surprisingly, our meteorologists have found a way to communicate with Prof. Turner and his team on a daily basis using Google Translate and a Facebook group. Global communication tools have let our people overcome language barriers and work closely on a daily basis despite the distance."

B.NARANBAYAR

Director of Social Policy at the Bayankhongor Governor's Office

Grateful for the support and commitment to implement “Impact of Air Pollution on Maternal and Child Health” project 2018-2023 funded by the Swiss Agency for Development and Cooperation (SDC).