Paper ID	295
Author(s)	TAKAHIRO YAMAMOTO, Yasunori Kurosaki, Masahide Ishizuka, Kei Kawai and Gantsetseg Batdelger
Title	Indoor Air Pollution in Mongolian Gers and Health Impacts

Abstract

In Central Asian countries, where the climate is cold and arid, the health impacts of PM2.5 from heating have long been a major concern. In urban areas, where population density is high, growing awareness of the issue—exacerbated by severe traffic congestion—has led to increased efforts in monitoring air quality and implementing countermeasures. However, little is known about the living environment of rural residents who maintain a nomadic lifestyle. This study presents the results of an air quality survey conducted in Mongolian gers in the Gobi Desert and discusses future challenges.

We have been conducting a long-term measurement survey since 2023, covering suburban areas, urban districts, and residential dwellings. The following summarizes the key findings obtained from the 2024 field survey.

Due to the strong influence of windborne sand in the surrounding environment, ventilation in gers tends to be restricted, resulting in extremely high indoor dust concentrations. This raises serious concerns about potential health impacts.

Gers effectively block external dust intrusion, preventing a significant increase in indoor dust concentration even during sandstorms. However, in summer, the usage of gers changes significantly, with increased efforts to ensure ventilation. While this leads to higher air exchange rates and a reduction in dust from indoor heating and cooking, it also results in greater infiltration of outdoor dust.

In areas with central heating, emissions from district heating facilities may contribute to indoor air pollution. This effect is particularly noticeable during peak usage hours, when increased heating and cooking activities lead to fluctuations in dust concentration across urban areas.

Keywords	Indoor Air Pollution, Mongolian Gers, Dust Concentration