

AIR POLLUTION AND ITS HEALTH IMPACTS ON INTERNAL MIGRANTS IN BISHKEK, KYRGYZSTAN

ASSESSMENT REPORT

*“Enhancing Migrants’ Awareness on Air Pollution and Moving Towards a
“Healthy City Vision” in Bishkek project funded by International Organization for
Migration’s Development Fund.*



Outline

- Executive summary
- Background of the study
- Methodology
- Results and Findings
- Emissions
- Households
- Migration status
- Heating
- Health impact
- Discussions and Recommendations



Executive Summary

1990s

Internal migrants from regions

Economic conditions

Public infrastructure

Methodology

Health symptoms

Fuels



Introduction

Bishkek is the largest hub

35% of Bishkek population are internal migrants

Residential areas (most affected by air pollution, unlinked to public amenities, city's heating and gas infrastructure)



IOM defines internal migration as "the movement of people within a State involving the establishment of a new, temporary or permanent residence".

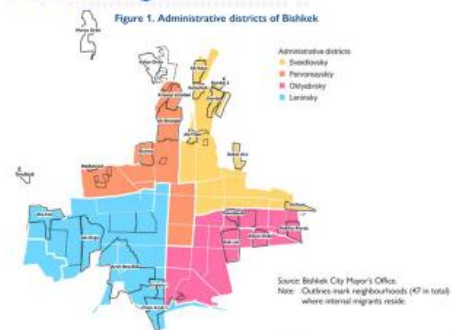


Background of the study

Air pollution

- Residential neighborhoods (47)
- Winter
- Mountain valley
- Construction of buildings
- Sanitary landfill
- Vehicles (fuel)
- Reduced green spaces

Internal migrants



Pervomaykiy District: around 13,000 households (gas-15%)
Sverdlovskiy District: almost 9,000 households (gas-14%)
Oktyabrskiy District has about 7,000 households (gas-30%)
Leninsky District: approximately 15,000 households (gas-58%)



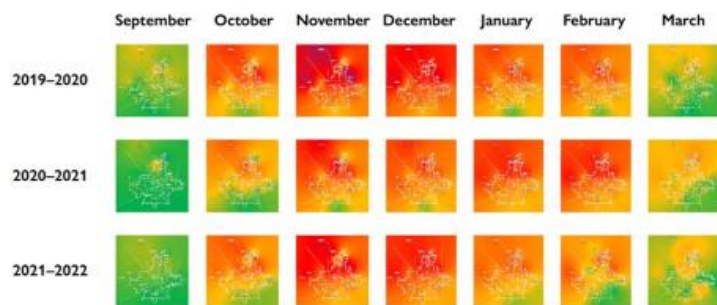
Methodology

- Study design
- Study setting
- Air quality maps
- Household survey
- Key informant interviews
- Focus group discussions
- Ethics
- Data analysis

Results and Findings

Input data for air quality maps of three heating seasons (2019–2020, 2020–2021 and 2021–2022) were obtained from HydroMet and Move Green monitoring sensors.

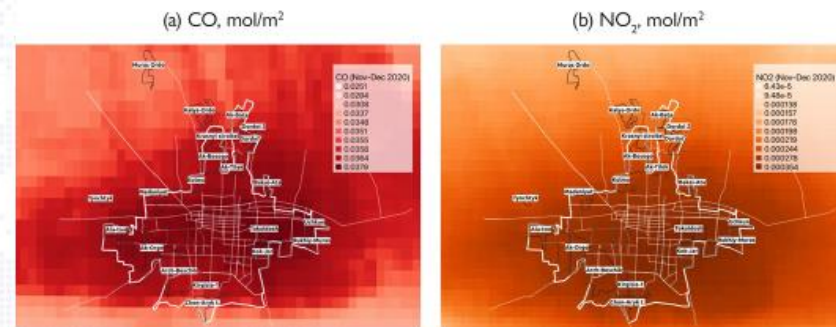
Figure 2. Air quality maps of Bishkek covering three heating seasons (2019–2022)



NO2 and CO emissions

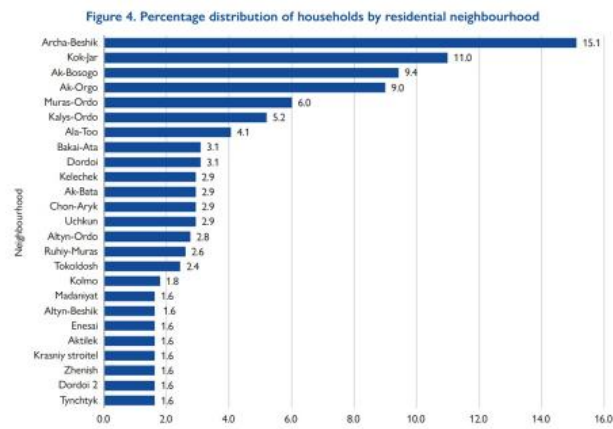
Open data from TROPOMI, on the Sentinel-5 Precursor satellite, shows levels of NO2 and CO pollution during the coldest months (November–December 2020) of the 2020–2021 heating season.

Figure 3. Pollution in Bishkek, November–December 2020



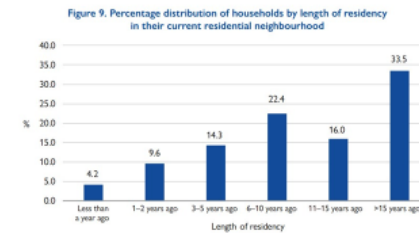
- Central parts of the city
- Vehicles (fuels)
- Traffic (transportation)
- Landfill

Household survey respondents' demographic profile

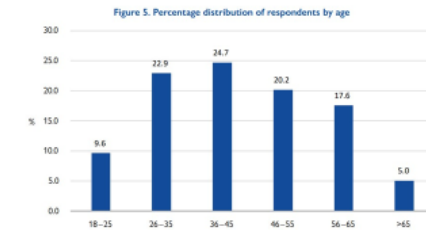


Distribution of respondents by residential neighbourhood. Most of the household survey participants were residing in the Archa-Beshik, Kok-Jar, Ak-Bosogo, Ak-Orgo and Muras-Ordo at the time of the survey.

Age and migration status

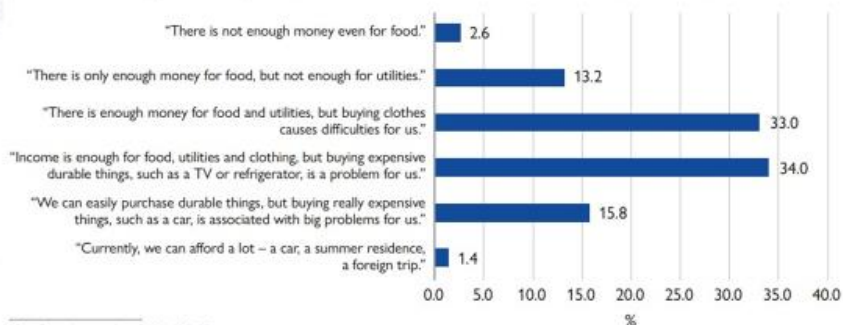


The largest group (25%) of surveyed internal migrants moved to their current residential neighbourhoods from Naryn Region.



Household socioeconomic status and Challenges

Figure 10. Respondents' assessment of their household financial situation



- The combined monthly income of all household members in every third household ranges from KGZ 10,000–20,000
- 12.2 per cent earning KGZ 20,001–25,000 a month
- 13.2 per cent less than KGZ 10,000 a month, respectively

Heating in the residential neighborhoods

Stoves

Boilers

Space heaters

Underfloor heating

Figure 12. Percentage distribution of households by heating method or equipment used

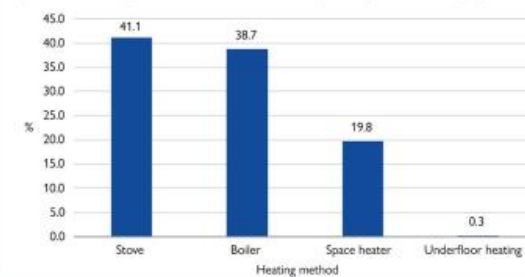
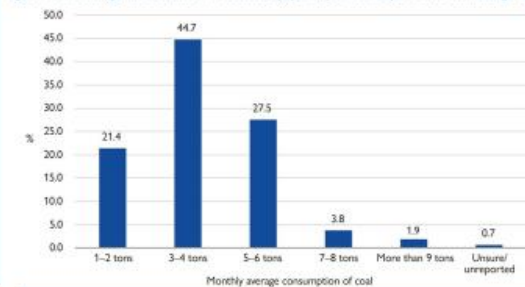


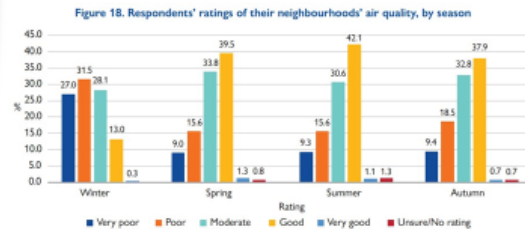
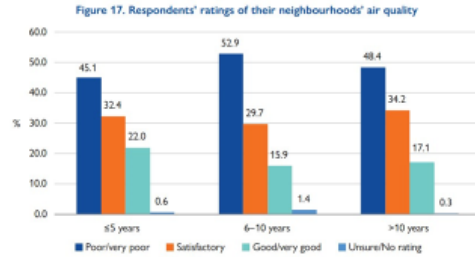
Figure 13. Percentage distribution of households by quantity of coal required for one heating season



Survey respondents' perceptions of air quality

FGD and KII participants also note seasonal changes in air quality, which deteriorates especially in the winter:

- "It is hard to breathe in the winter."
- "I have a constant cough in the winter."
- "In winter, the children do not even want to go outside to play."
- "When I return from work, I do not even see houses when I walk down the street in wintertime."



Health impacts

Figure 23. Respondents' self-assessment of their health over the last four weeks

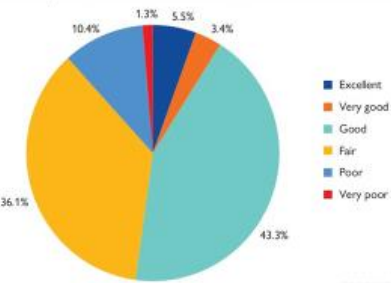
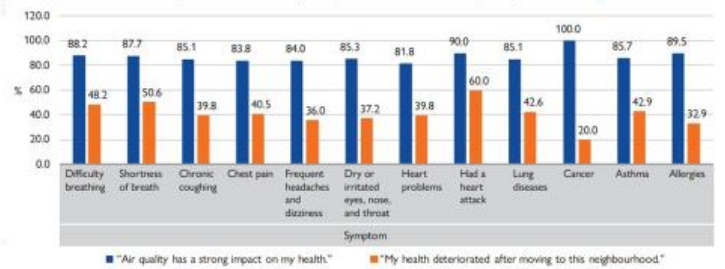


Figure 27. Health impacts attributed by respondents to the air quality in their neighbourhoods



Willingness to act on improving air quality

Respondents

- 83.9 % are willing and ready to switch to cleaner energy and cleaner heating systems
- 72.8 % are ready to participate in the sorting of solid waste
- 71.4 % are in planting
- 57.2 to 67.6 % are indicating that they would avoid burning solid waste, conserve drinking and irrigation water, improve the energy efficiency of their homes, including by installing energy-saving light bulbs, and use public transportation.

National Government

Created an interdepartmental working group that developed a five-year plan to improve the environmental situation in Bishkek.

Concrete actions:

- Prohibition by the Bishkek City Mayor's Office of the use of fireworks in the city during the New Year holidays.
- MTUs organize periodic raids on small businesses to enforce and monitor compliance with the ban on the burning of solid waste, plastics and other harmful materials that business owners use for heating.
- Gas heating infrastructure is (gradually) being developed in neighborhoods around Bishkek.

DISCUSSION OF FINDINGS

Due to growing internal migration in Kyrgyzstan and the arrival of working-age individuals in the capital city, Bishkek, population density in these areas is high and population continues to grow.

Neighborhood air pollution will continue to be a public health concern for years to come, necessitating the urgent need for comprehensive action.

One of the main factors contributing to air pollution is the use of coal for heating by a large number of local residents in the autumn and winter.

Almost all respondents – residents and experts alike – report health problems, which they link to poor environmental conditions and poor air quality in the studied residential areas.

Regularizing these neighbourhoods and connecting them to the city infrastructure would build the foundation for a comprehensive plan of action that includes all stakeholders in the fight against air pollution. To strengthen awareness of the impacts of air pollution on human health, it would be important to continue raising the awareness of these residents, including internal migrants, on this subject.

Recommendations

Government of Kyrgyzstan



Bishkek City Hall



References

1. AIR POLLUTION AND ITS HEALTH IMPACTS ON INTERNAL MIGRANTS IN BISHKEK, KYRGYZSTAN ASSESSMENT REPORT:
[Air Pollution and Its Health Impacts on Internal Migrants in Bishkek, Kyrgyzstan - Assessment Report | IOM Publications Platform](#)