AQ in Bishkek, Kyrgyzstan:

Compiling evidence to support policy formation

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Contents

1. Review of air quality monitoring & meteorology
2. Emissions inventory, projections & scenarios
3. Dispersion modelling
4. Conclusions and follow-on work

Key successes

- Building an evidence base – a start
- Education of local counterparts
- Co-ordination from UNEP, UNDP, WB, ADB, UNICEF…

Acknowledgements

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Introduction/Context

- Bishkek is sometimes the most polluted city in the world
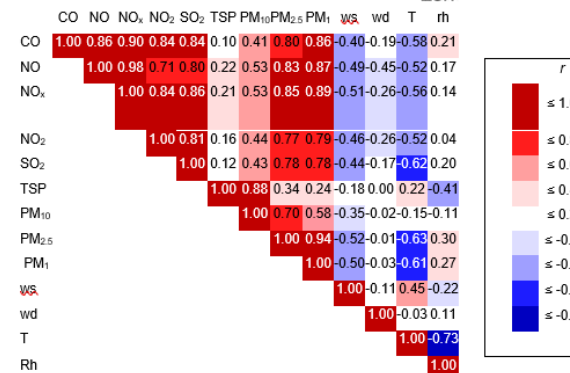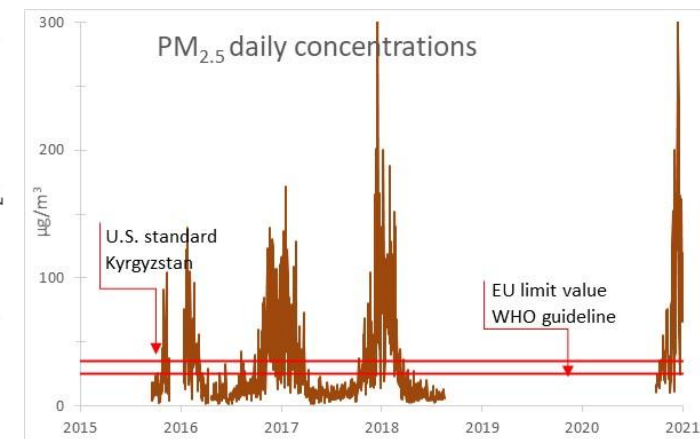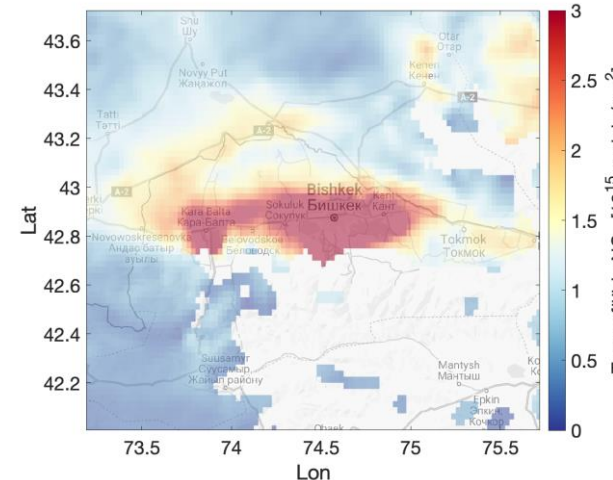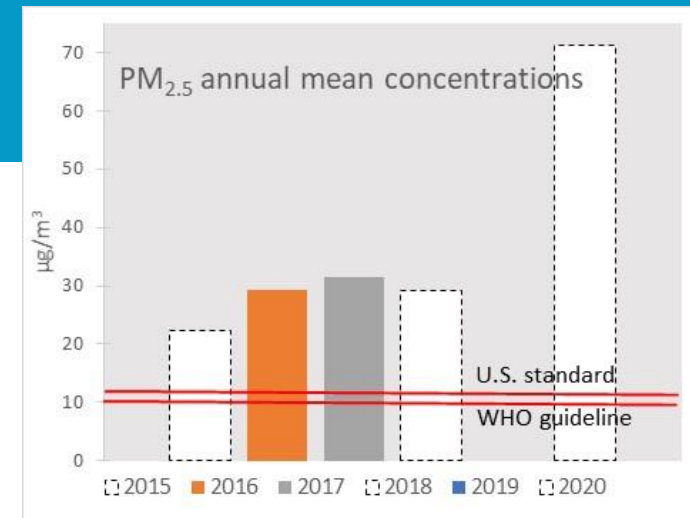
- A lot of residential coal use
- Old road transport vehicle fleet

- Mountains to the South
- Strong winter-time inversions

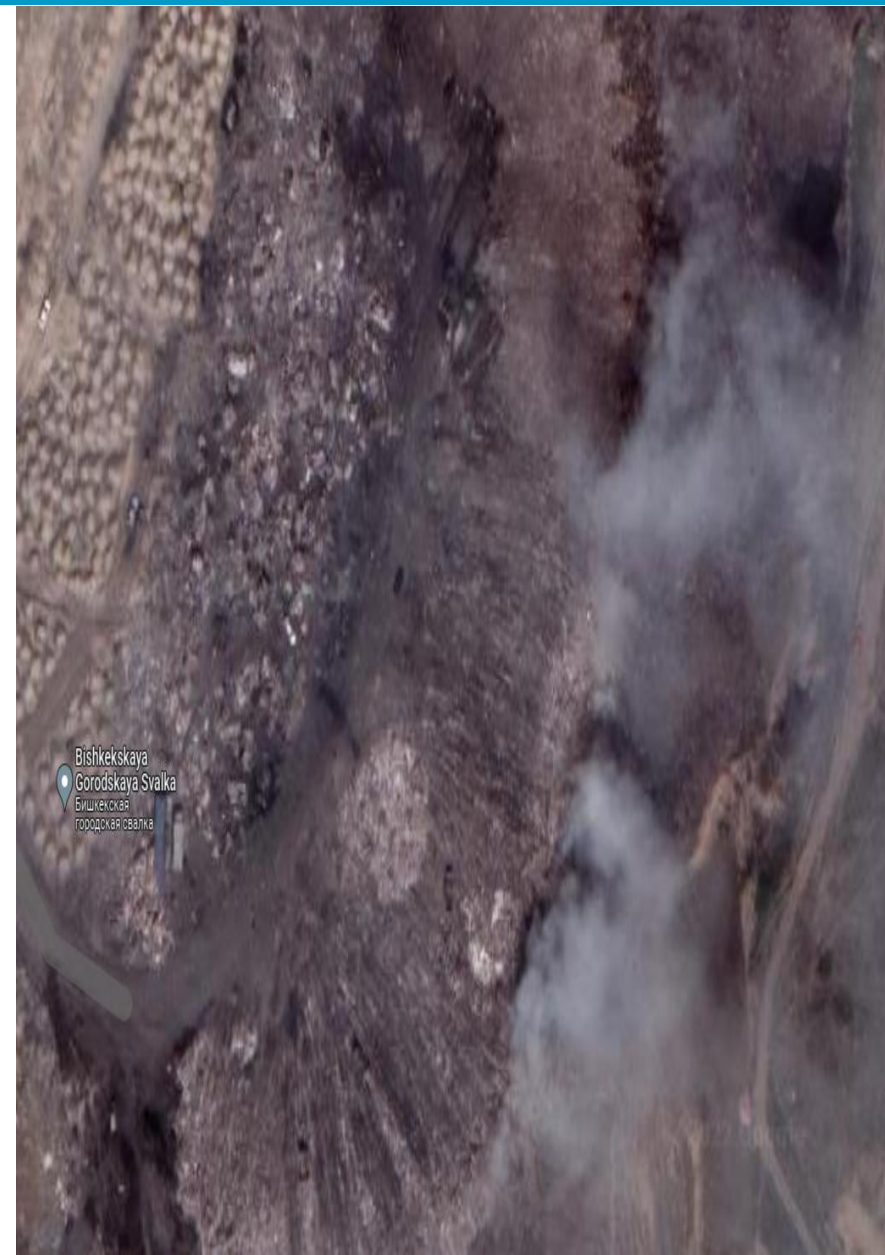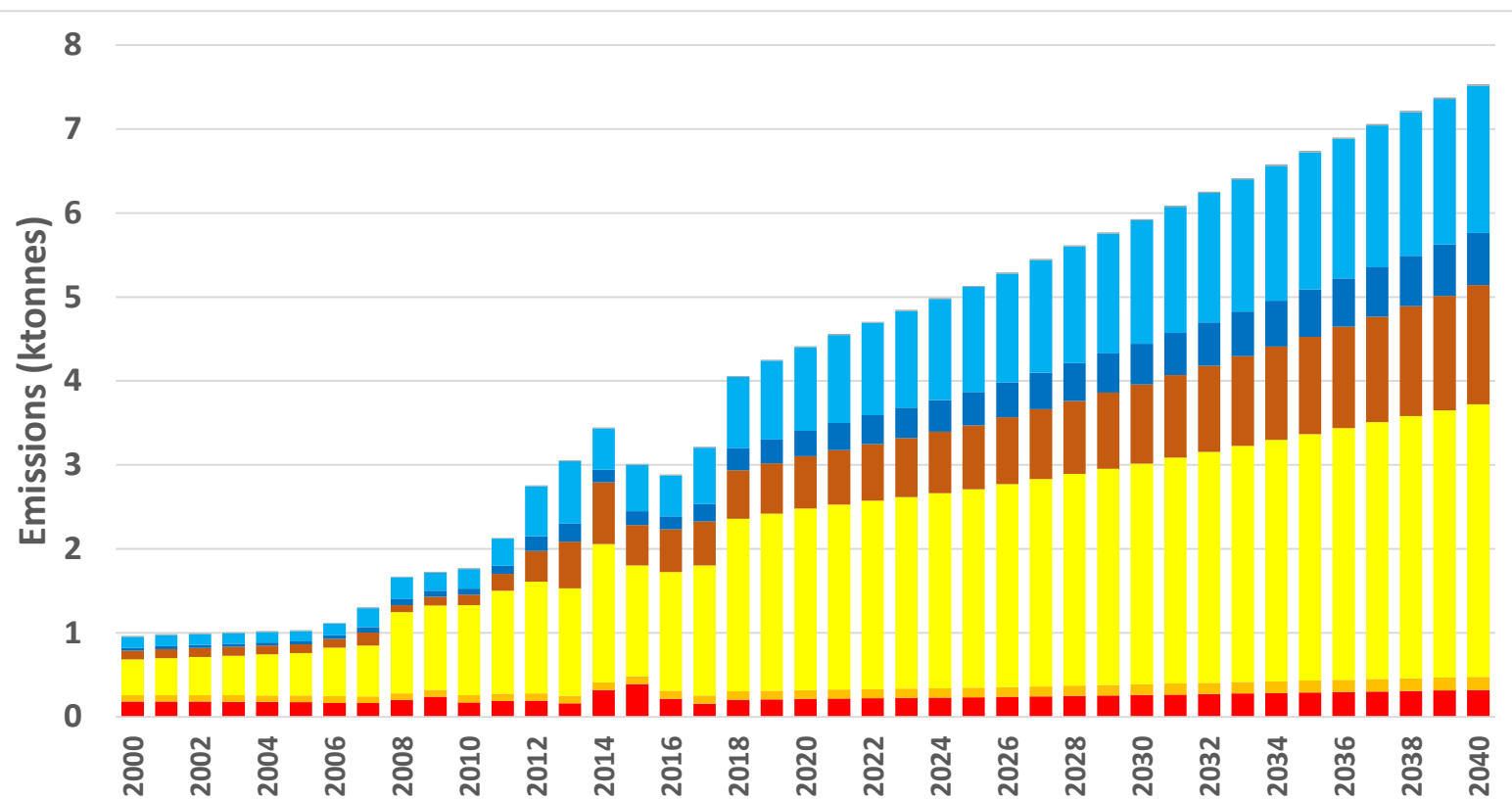- Current AQ strategy is more of a "wish list"
- Little/no evidence base

1. Review of AQ Monitoring & Meteorology

- Limited automatic monitoring stations
  - KyrgysHydromet station in operation since 2015
- Numerous low-cost sensors
  - Networks run by different operators
- Satellite data

- Very limited measurements of meteorological conditions
- Strong winter-time inversions.
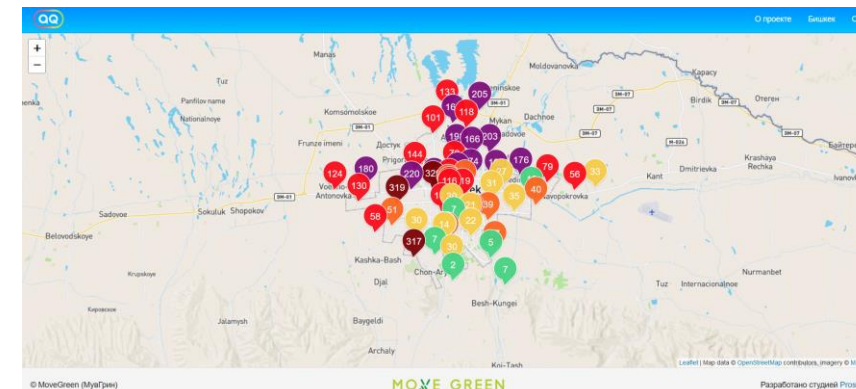
PM$_{2.5}$
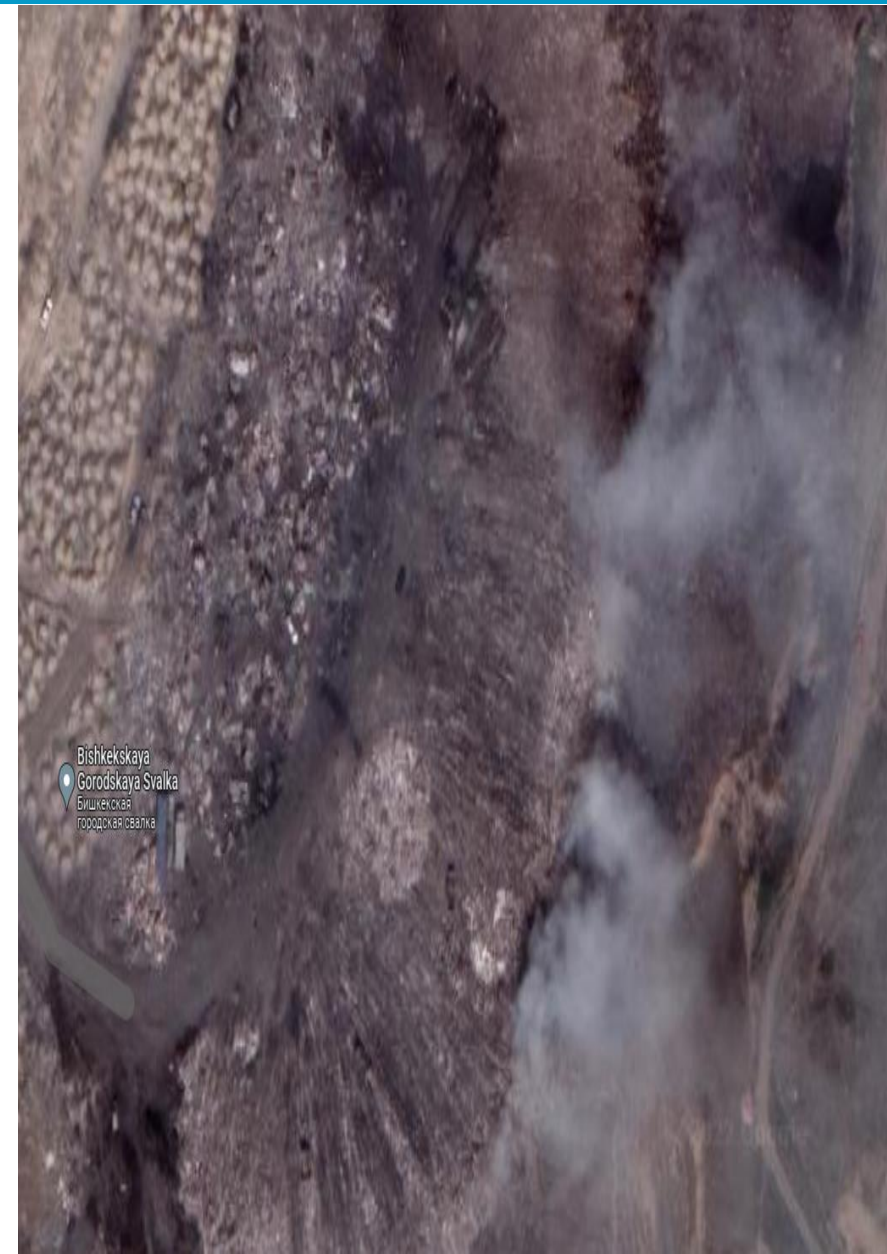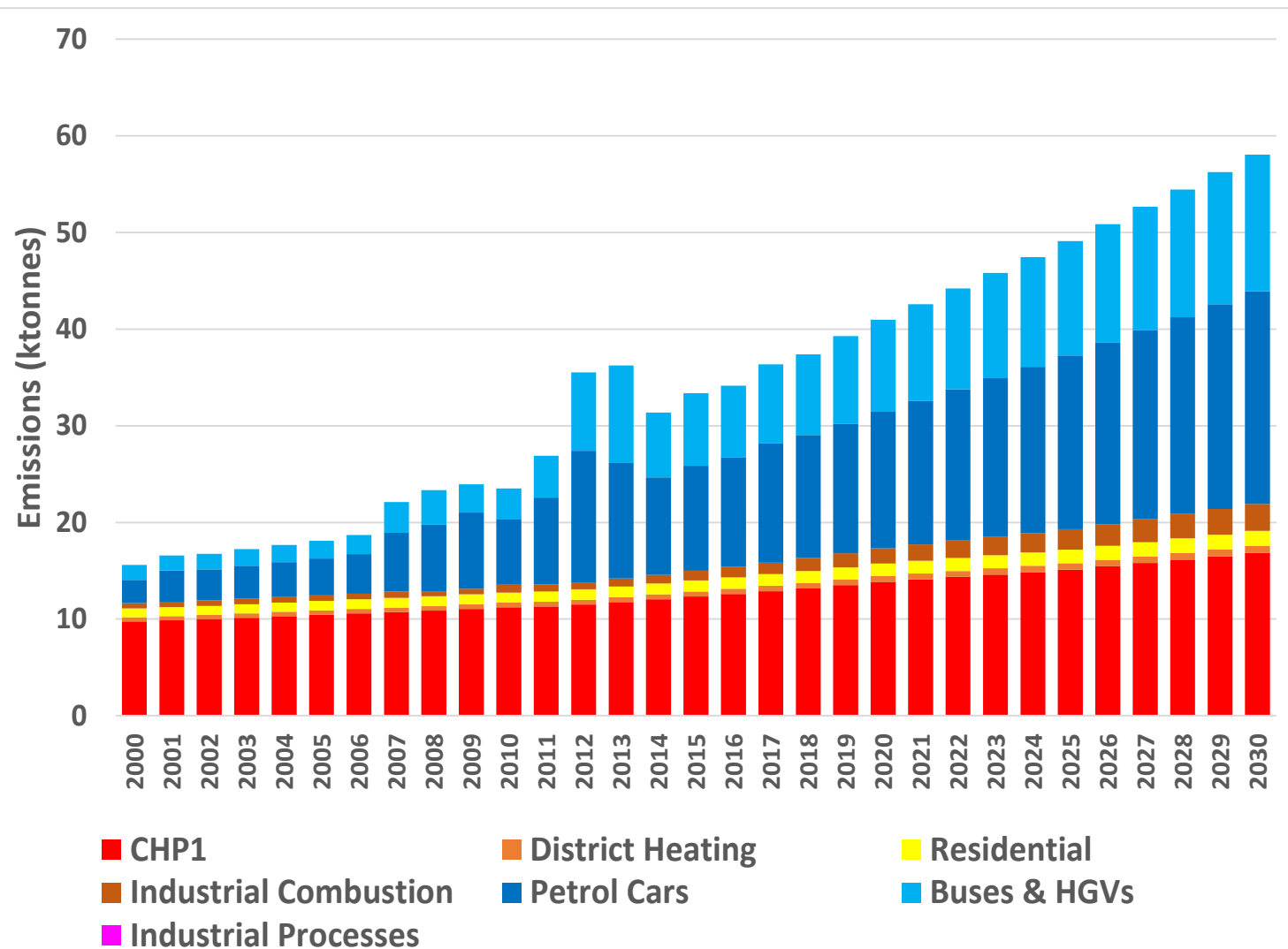
Emissions (ktonnes) vs. Year (2000–2040)

Legend:
- CHP1
- District Heating
- Residential
- Industrial Combustion
- Petrol Cars
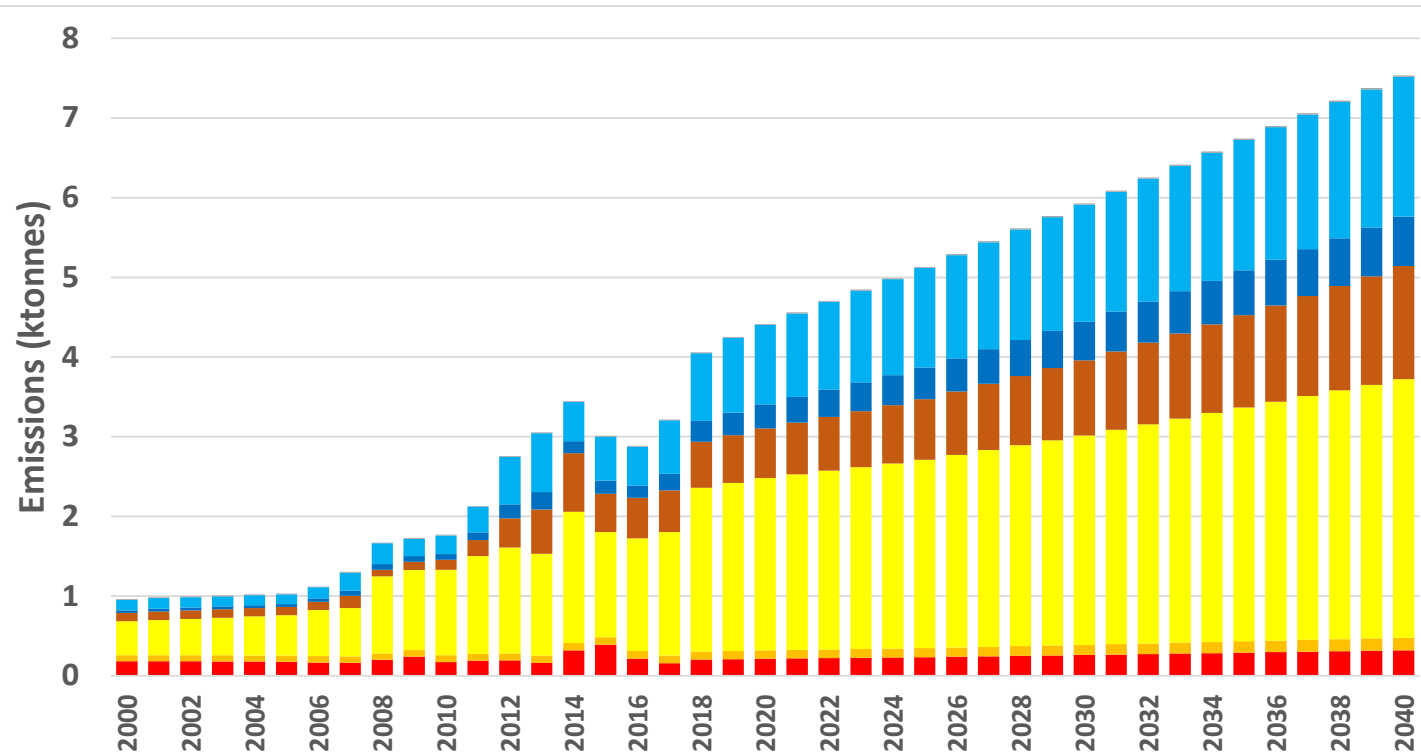- Buses & HGVs
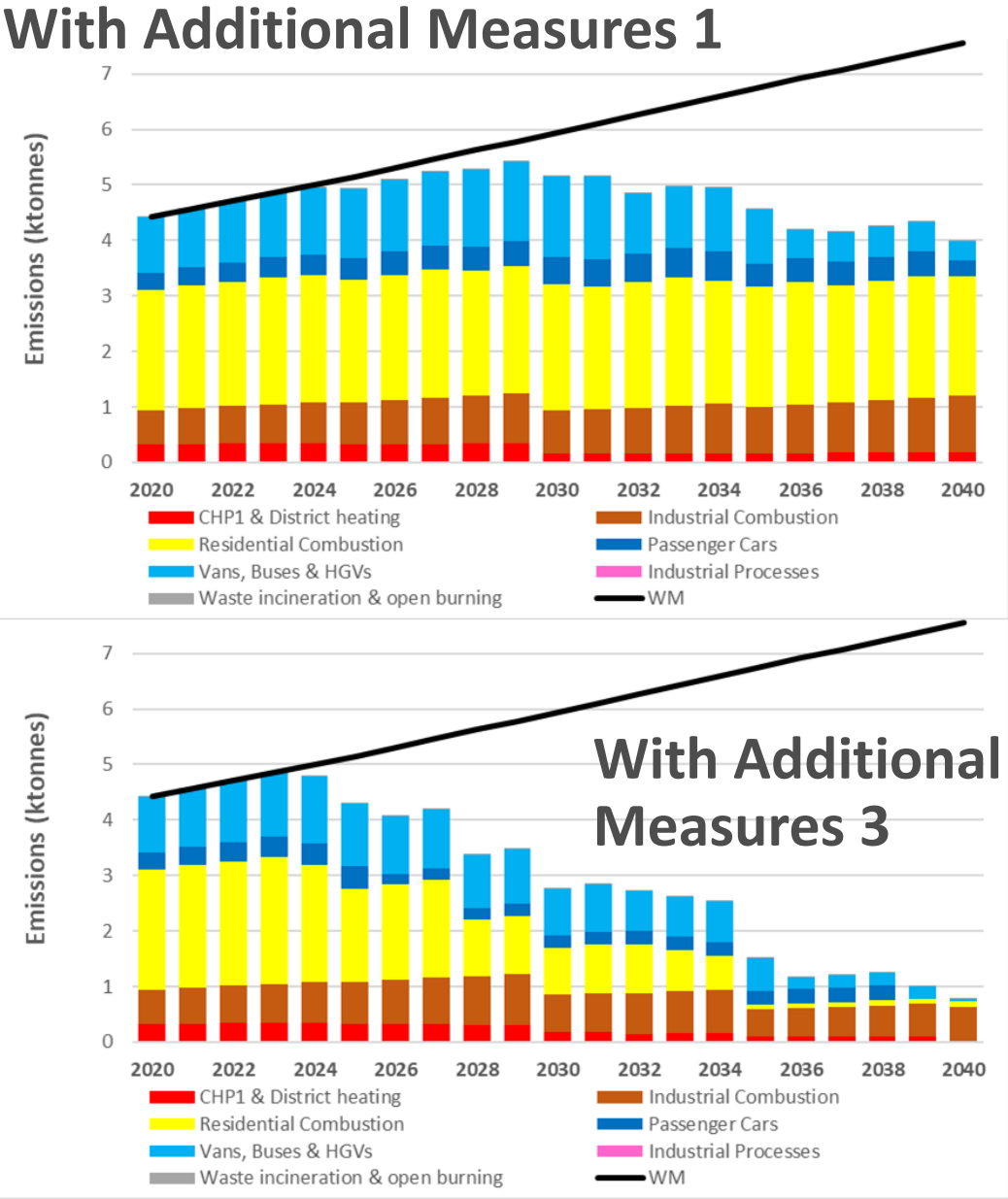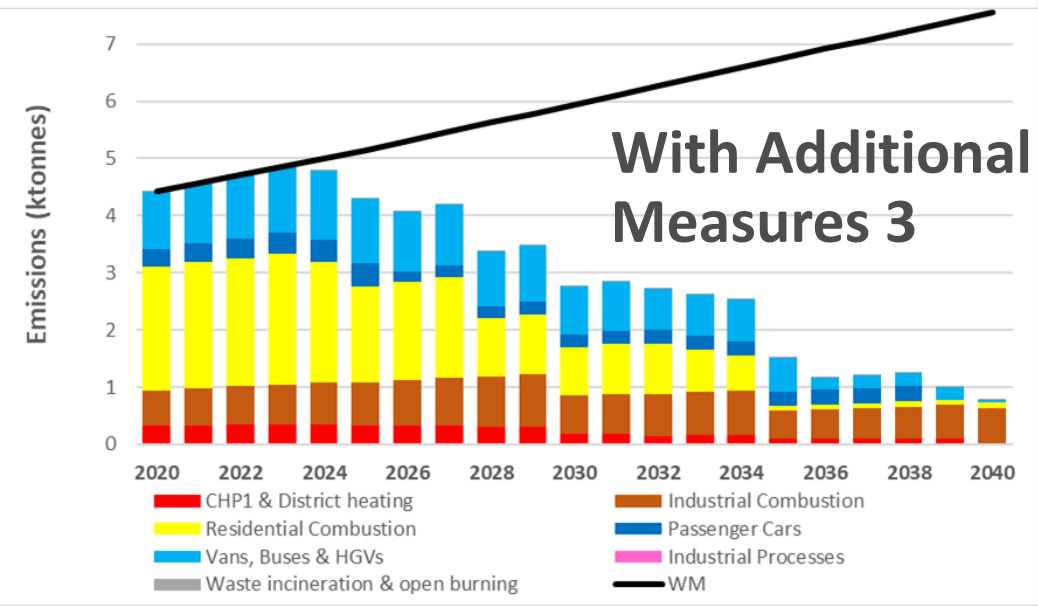- Industrial Processes
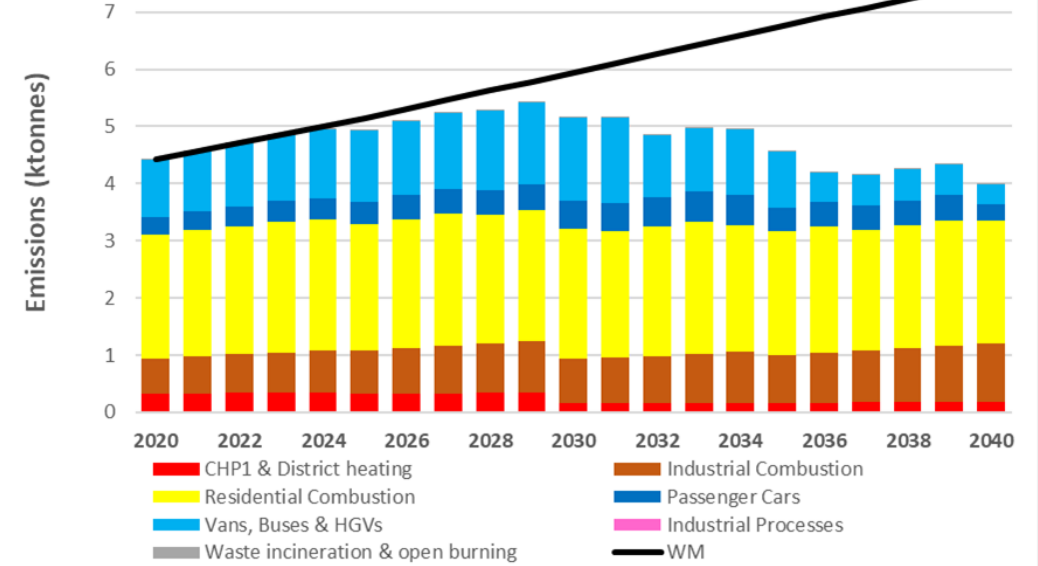- Waste incineration & open burning

NO_X

2. Emissions Inventory, Projections & Scenarios

PM_{2.5}
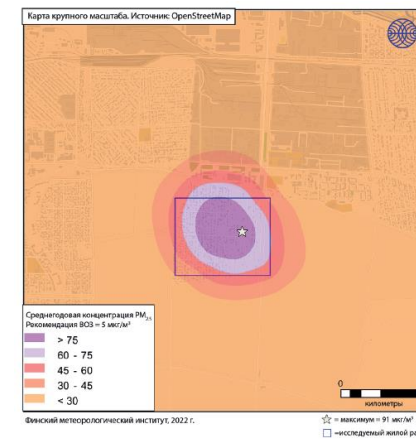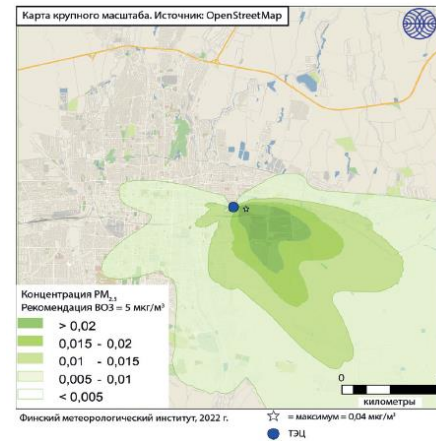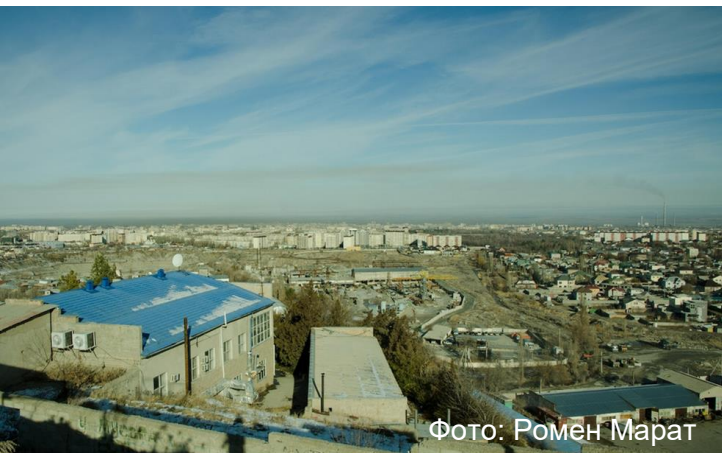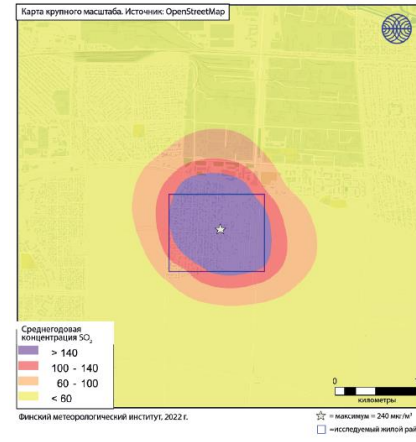
With Additional Measures 1

With Additional Measures 3

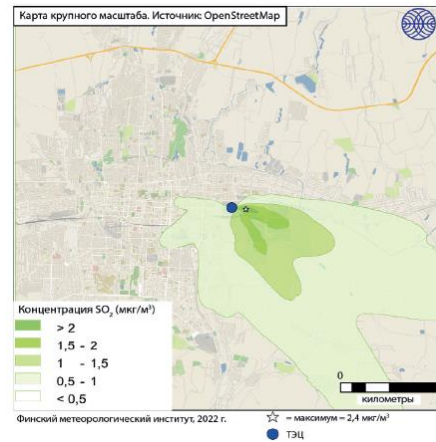# 3. Dispersion Modelling

- Two case studies – CHP and a residential location
- Demonstrates very differing contributions to ground level concentrations

	Maximum average annual concentration [μg/m³]
SO_2	24
$PM_{2.5}$	29
PM_{10}	100
NO_2	40

Concentrations → Health impacts

But,   Emissions ≠ Concentrations

… and we need to understand the relationships
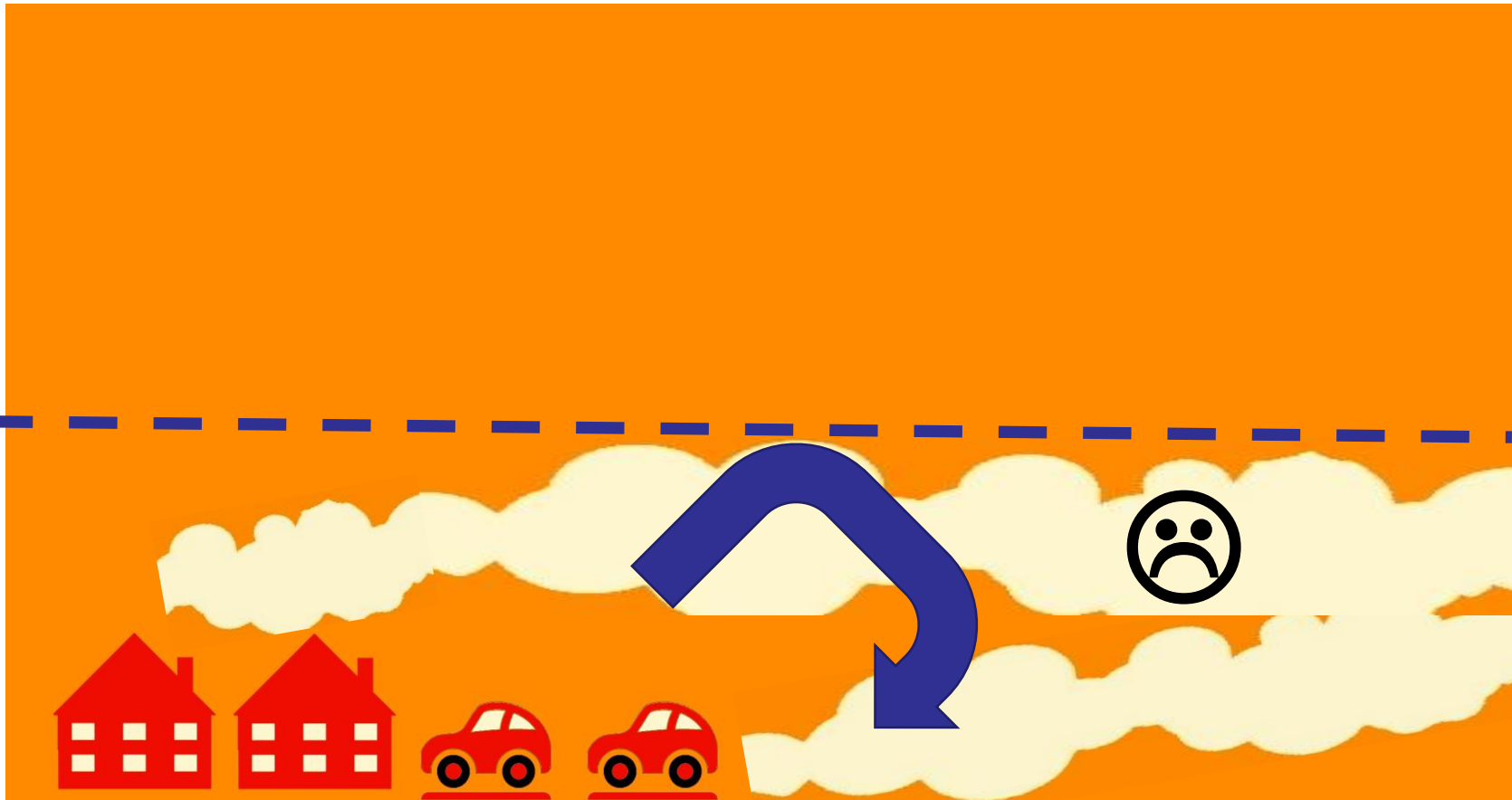
4. Conclusions and follow-on work

- Made a start on building the evidence base – clear recommendations for future investments

- Recommendations to update AQ legislation

- Explaining some fundamentals of air quality management to local counterparts

- Newly formed co-ordination from UNEP, UNDP, WB, ADB, UNICEF…
  - Technical co-ordination meetings
  - Donor co-ordination meetings

- World Bank project
  - Emission maps, modelling to generate concentration maps.
  - Compiling evidence needed to support investment in residential sector policies & measures.

Thank-you for your attention