

המשרד להגנת הסביבה



الوزارة لحماية البيئة
Israel Ministry of Environmental Protection

Knowledge gaps in air pollution research in Israel – MOE perspective

EHF meeting July 16, 2019



A. Particulate Matter

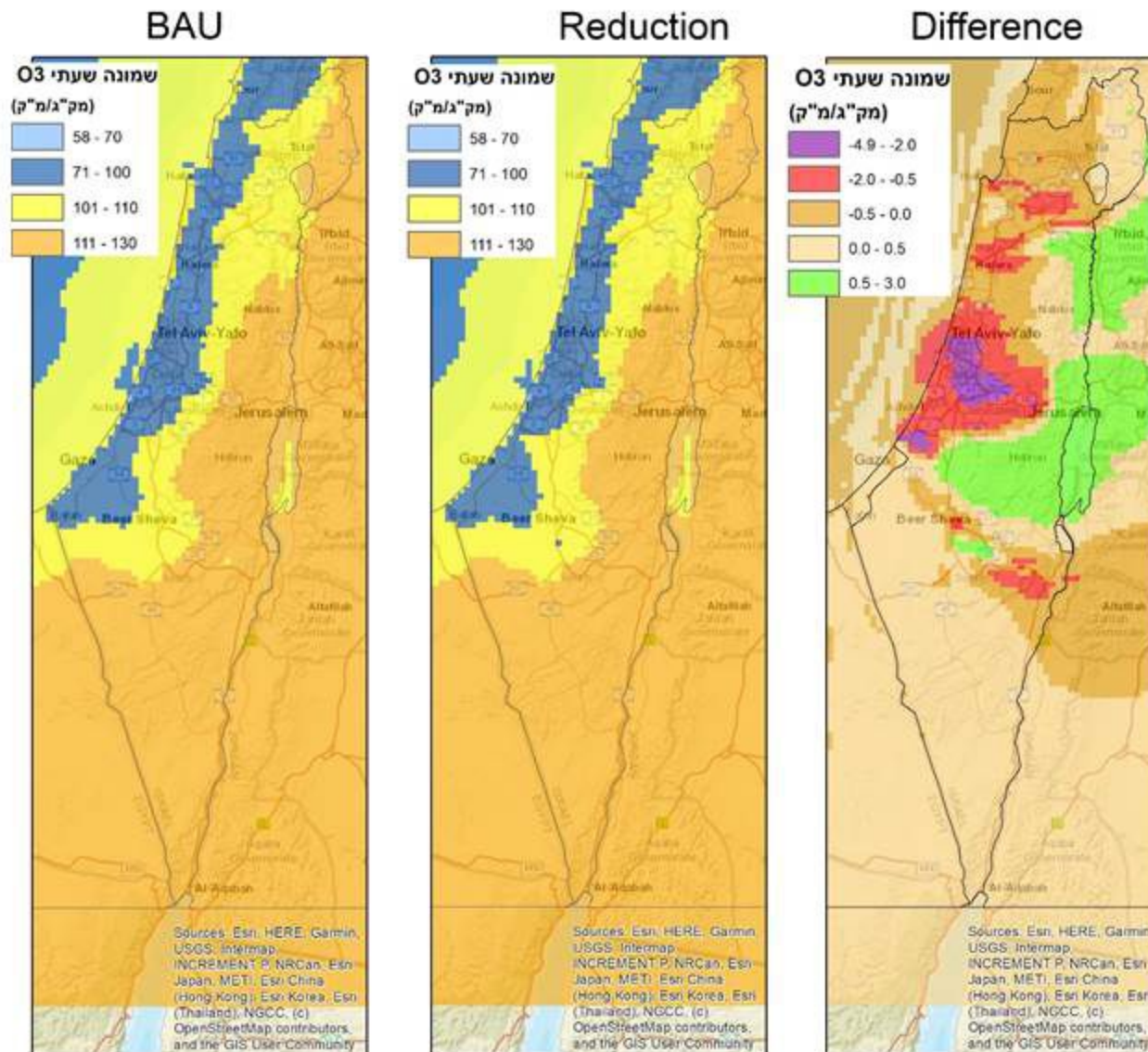
- What is the contribution of local anthropogenic emissions vs. other sources?
- PM partitioning and source apportionment:
 - primary-secondary biogenic aerosols (desert dust vs ammonium sulfate and ammonium nitrate)
 - primary-secondary anthropogenic aerosols (different geographical regions in Israel (coast vs. inland, traffic vs. industry, ...))
- PM composition: (Soot, sea salt, mineral dust...)
- Contribution of residual layers to ground level-pollution (on following day/days)
- Geographic variability



B. Ozone - exceedances inland

O3 8-hours mean
Typical summer day

8-hr Target value: 100 $\mu\text{g}/\text{m}^3$





B. Ozone - exceedances inland

- Local vs remote contribution to Ozone
- Contribution of residual layers to ground level-pollution (on following day/days)
- Ozone reduction mechanism – Ozone Forming Potential (OFP) of specific VOC's
- Geographic variability of ozone reduction mechanisms (VOC-limited/NOx-limited)



C. Indoor air pollution

- Emission sources?
 - Cooking/cleaning products/cosmetics/fabrics/...
- Environments?
 - Residential/school/office/...
- Pollutants?
- Exposures?
- ...?



D. Traffic related pollution – urban areas

- Impact with distance from road
- Vertical variations in air pollution – pollution vertical impact on sensitive land uses (residential/schools/hospitals...)
- Identification of "hot spots" of air pollution



E. AQ standards

- Standards for PM lower than PM2.5: PM1, BC, PNC.

F. Specification of ambient VOC's

- We have emission standards for VOC's /TOC/NMVOC, but we do not know how much VOC's there are in ambient air. Monitoring networks only provide a limited number of VOC (Benzen, BTEX) but not all.



G. Israel-specific AQI / Health AQI

- Development of AQI specific for Israel
- Health-AQI based on local health studies



Future directions

- Real time data:
 - Vehicle fleet emissions (tailpipe measurements) feeding into AQ models
 - Stack emissions monitoring
 - Measurements validating & correcting AQ models
- Multi-pollutant standards

- MOE's data usage for research. E.g.:
 - PRTR data, Emissions Inventory, AQ models output,...
 - GAINS model for cost-effective emission control strategies to reduce GHG and AQ.

Considerations in environmental health policy

• Data-driven policy (Science)

- Economic
 - Cost-benefit
 - Cost-effectiveness
 - Solvency
- Legal issues
- Ethical issues
- Political/social/cultural issues
- Logistic and practical
- History and tradition
- What others do?
- Leadership
- Window of opportunity
- Organizational considerations

• The other side



Air pollution research: Multi-disciplinary approach

