

The Global Problem of Pharmaceutical Pollution

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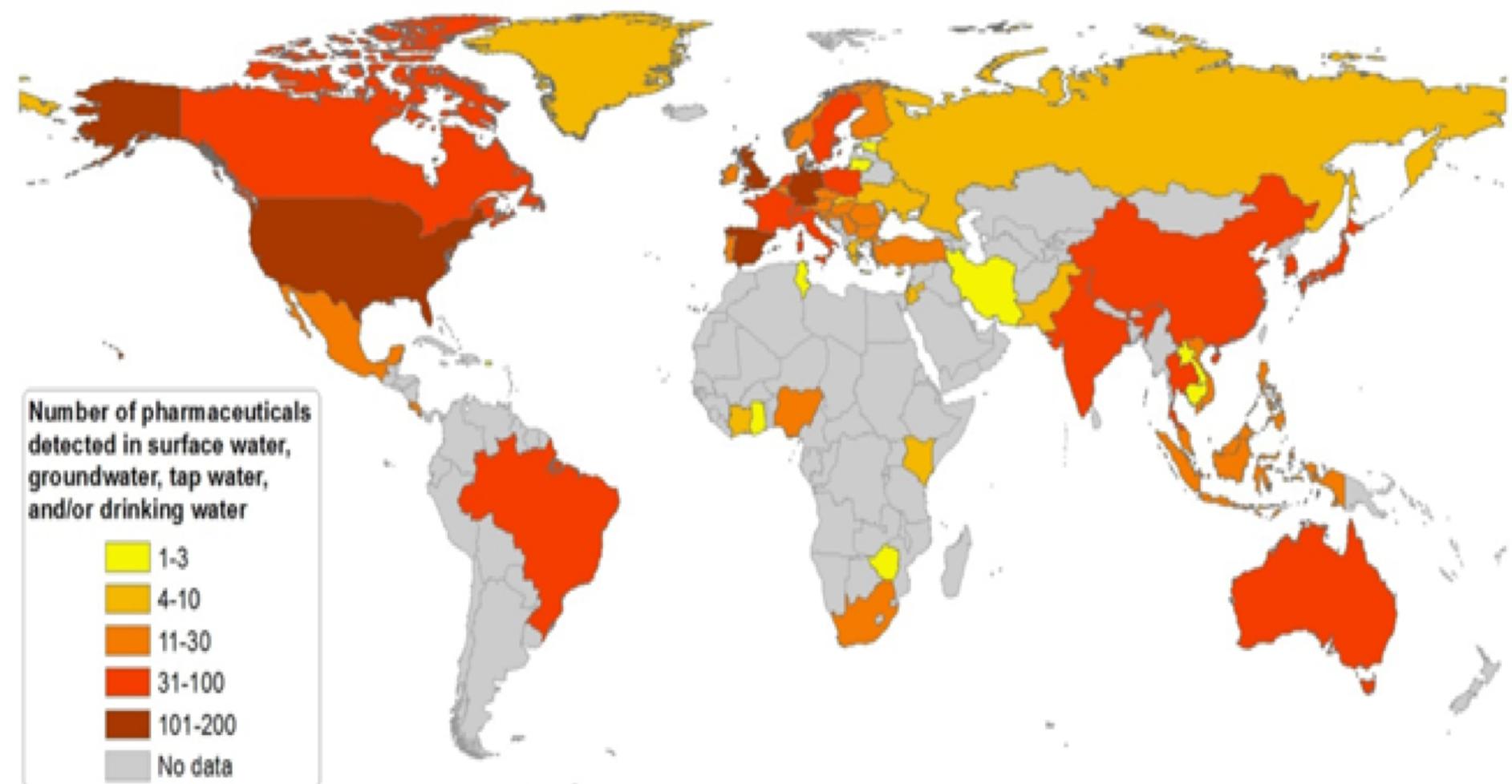
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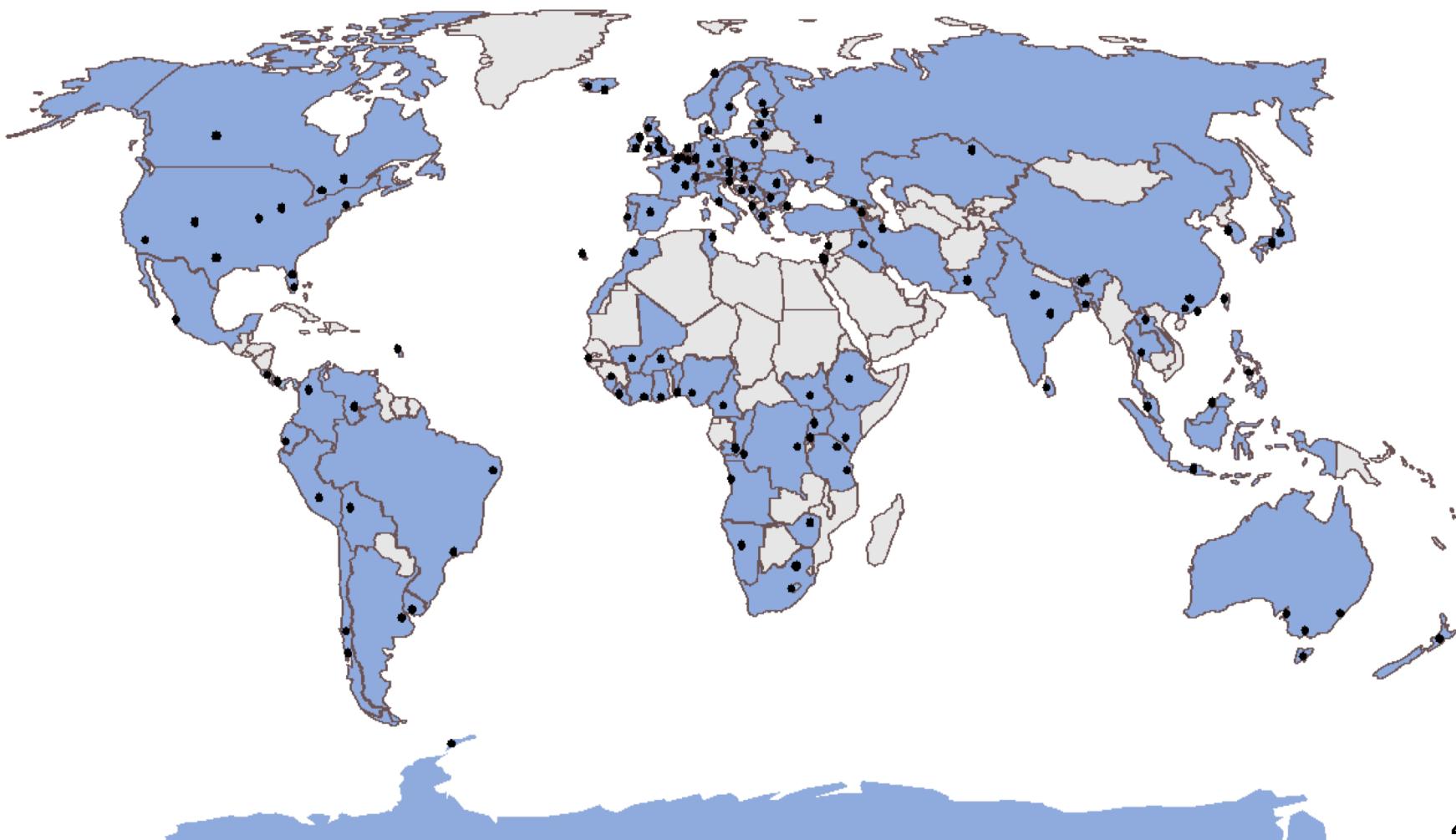
In the UK: 13,500 tonnes
of active pharmaceutical
ingredients are prescribed
each year; 2,862 tonnes
are unused; 4,793 tonnes
are metabolised and
5,845 tonnes are emitted
to the sewage system

What we know about pharmaceutical pollution more broadly



Aus der Beek et al., 201

61 Pharmaceuticals, 134 Sampling Campaigns, 104 Countries

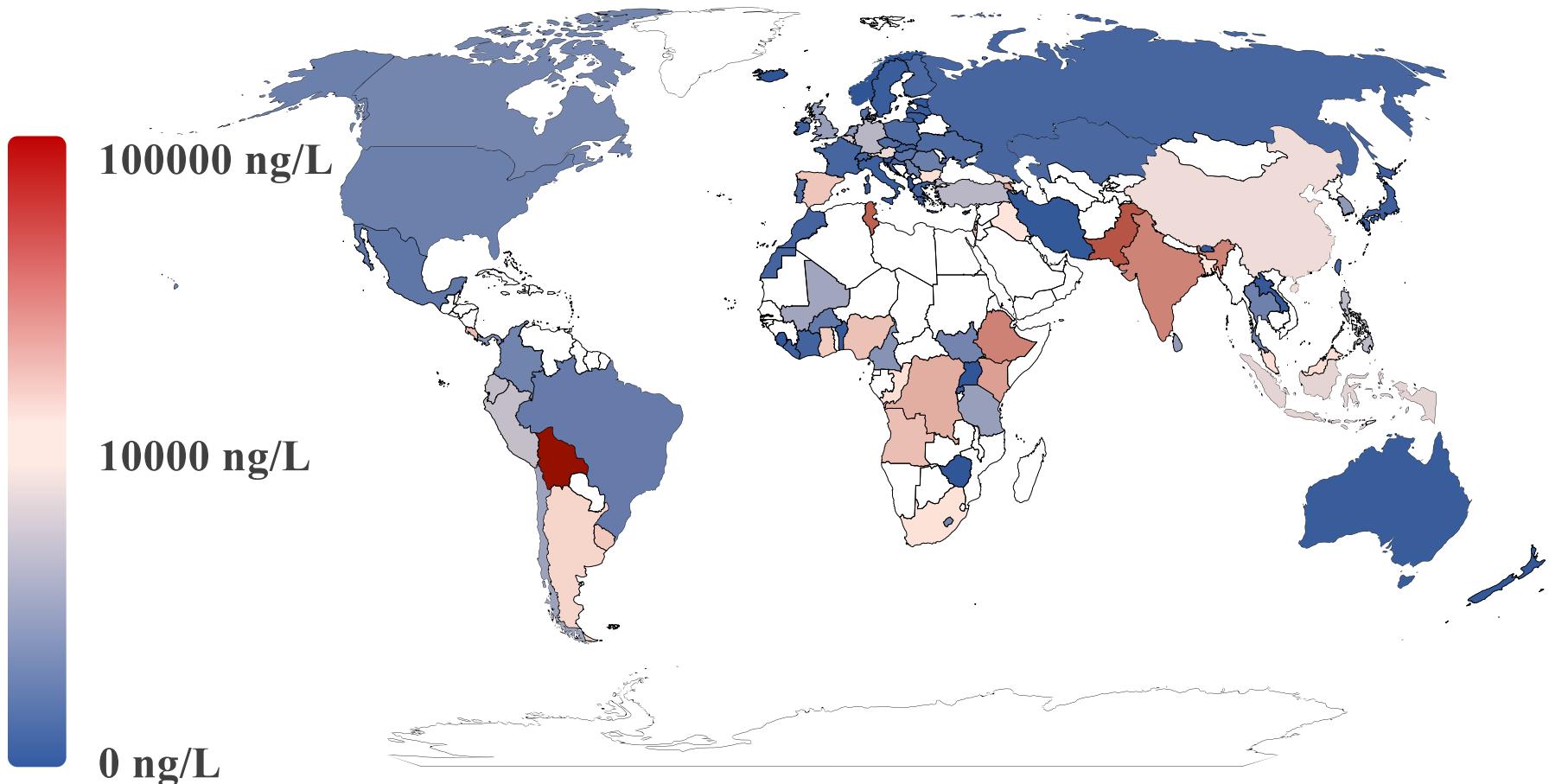


Our monitoring approach

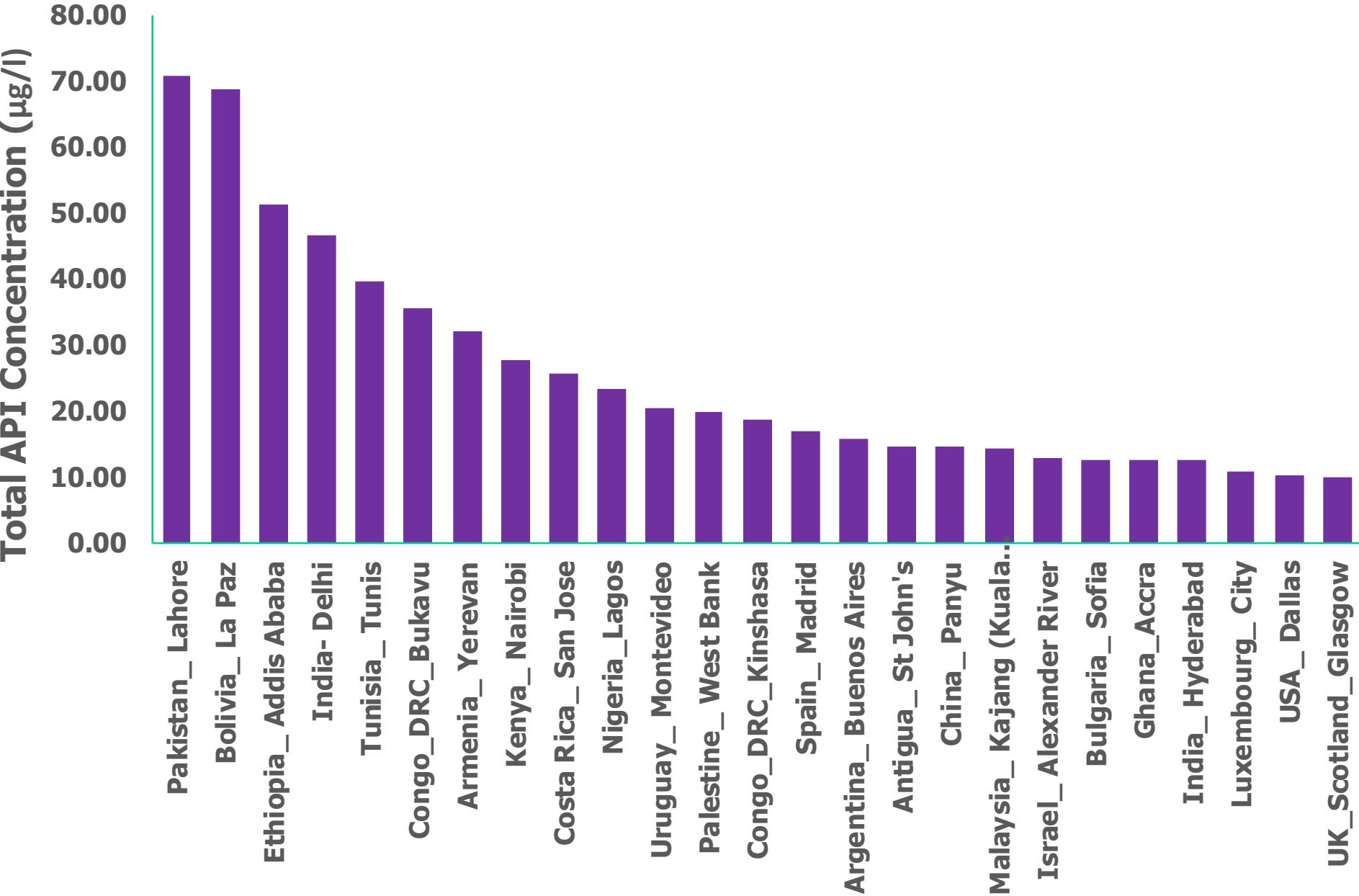


Total concentrations by country

Total concentration (ng/L)



Top 25 Contaminated Systems



Drivers of the pollution



- **Political instability** (e.g., Israel, Palestine, Iraq)
- **Population Density** (e.g., Hong Kong, Delhi)
- **Inadequate water/ sewage connectivity** (e.g., Nairobi, Tunis, Lagos, Barisal, Lahore)
- **Inadequate sewage treatment** (e.g., Nairobi, Lagos, Panyu, Baghdad, Antigua)
- **Dry climate** (Las Vegas, Madrid, Denver, Tunis)

Summary

- Pharmaceuticals that we use will end up in the environment
- Levels of pharmaceutical pollution in rivers across the World likely having ecological impacts and pose a threat to human health
- Most impacted sites are often found in low and middle income countries with poor waste and wastewater management, industrial discharges, and areas with water scarcity
- Need for global collaboration to solve the problem