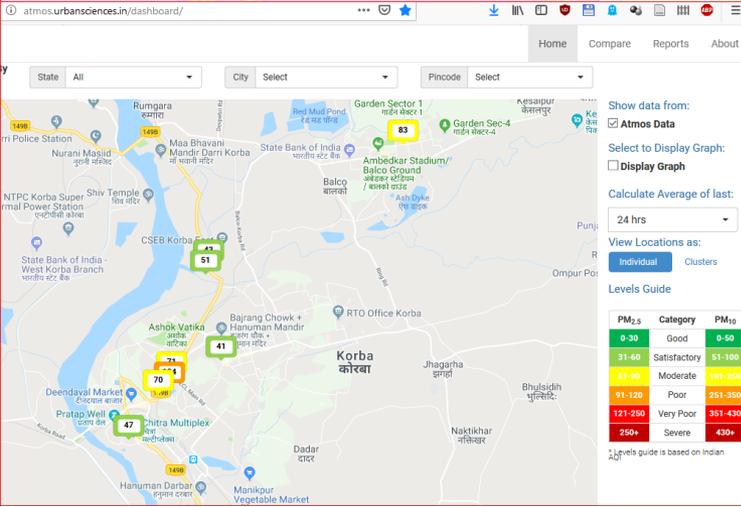
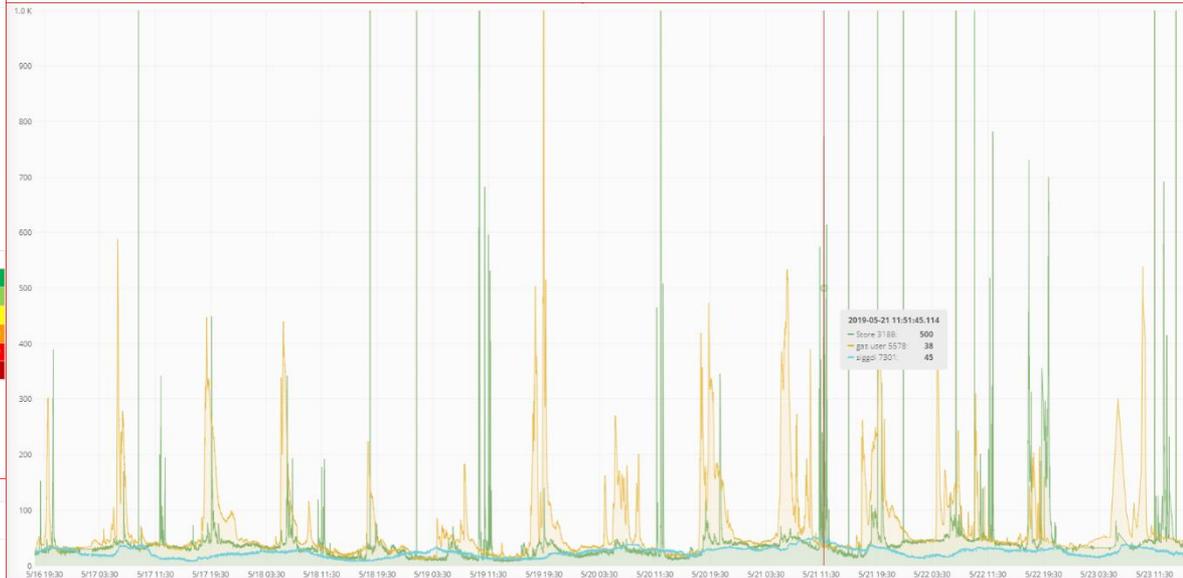
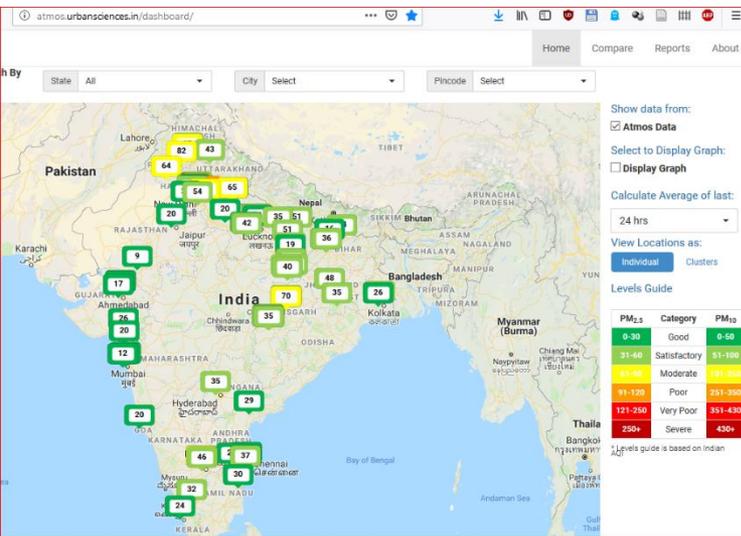


CITIZEN SCIENCE, PARTICIPATORY RESEARCH (Part 2): Air pollution and energy poverty case studies



4 June 2019

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Outline

- Analysing air pollution (20 minutes)
- Case studies on air pollution and energy poverty (15 minutes)
- Group work (50 minutes)
- Discussion of case studies (20 minutes each)

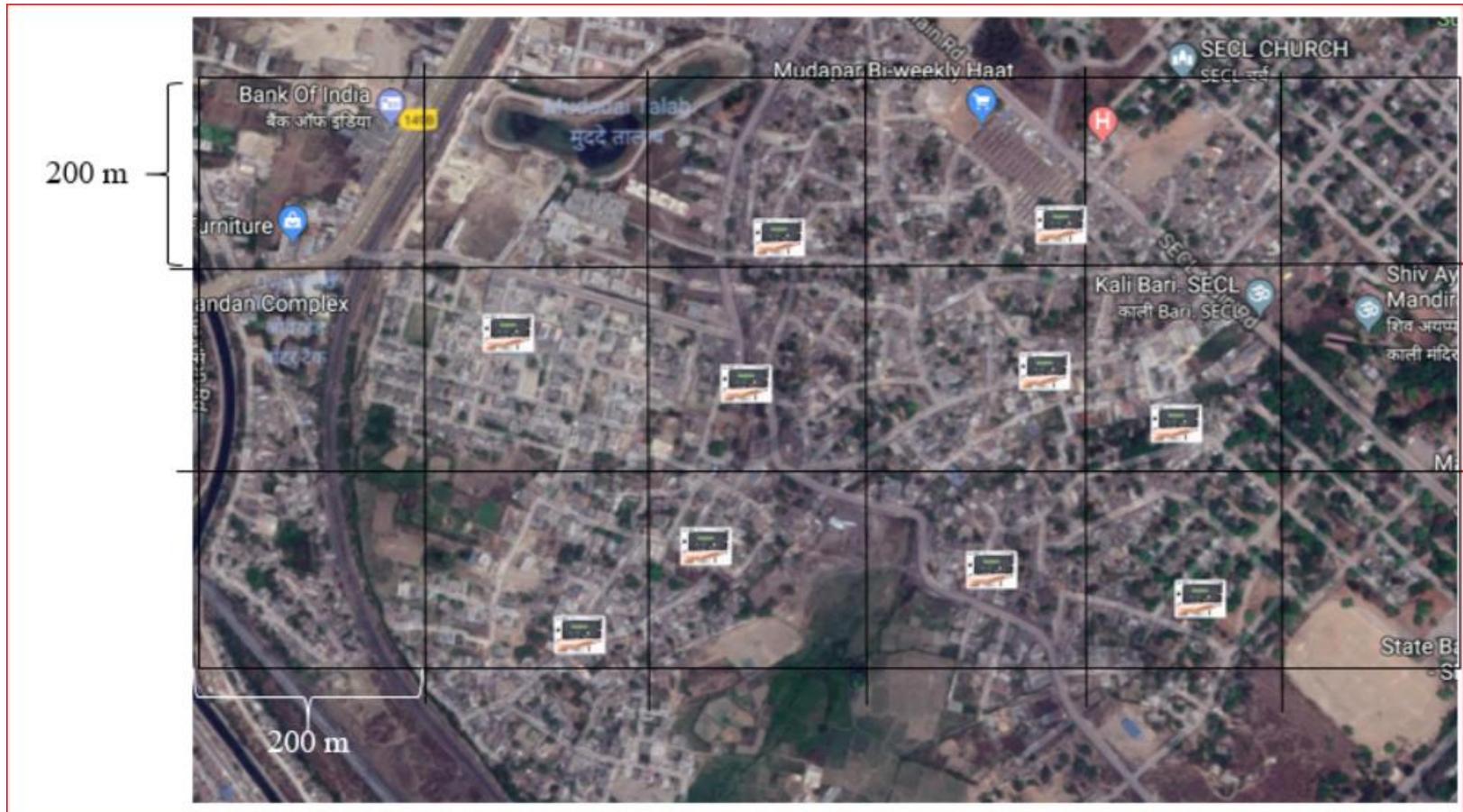
- PM2.5 is very varied:
 - Traffic, road dust, waste burning, power plants, household stoves, agricultural burning, forest fires, desertification
 - All these will show up on pollution monitors

Socio-environmental air pollution monitoring

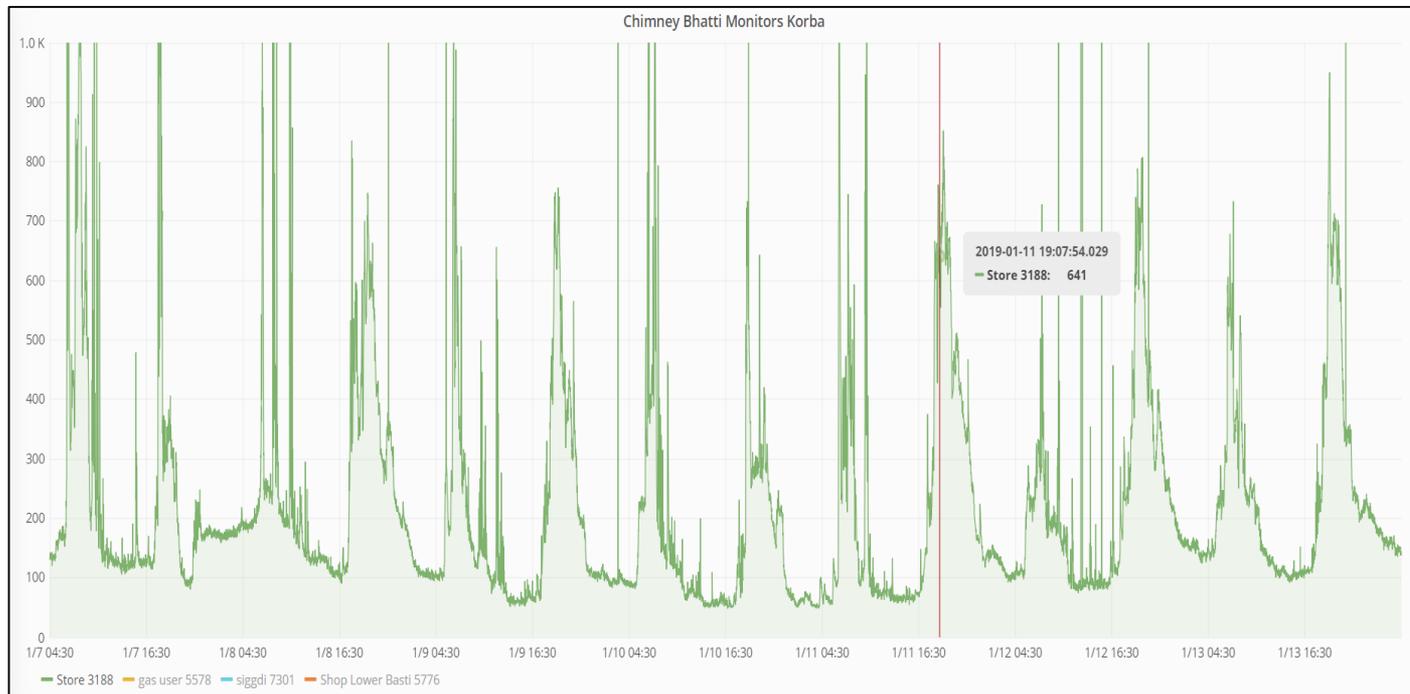
- Monitor where people live
- Target specific source of pollution



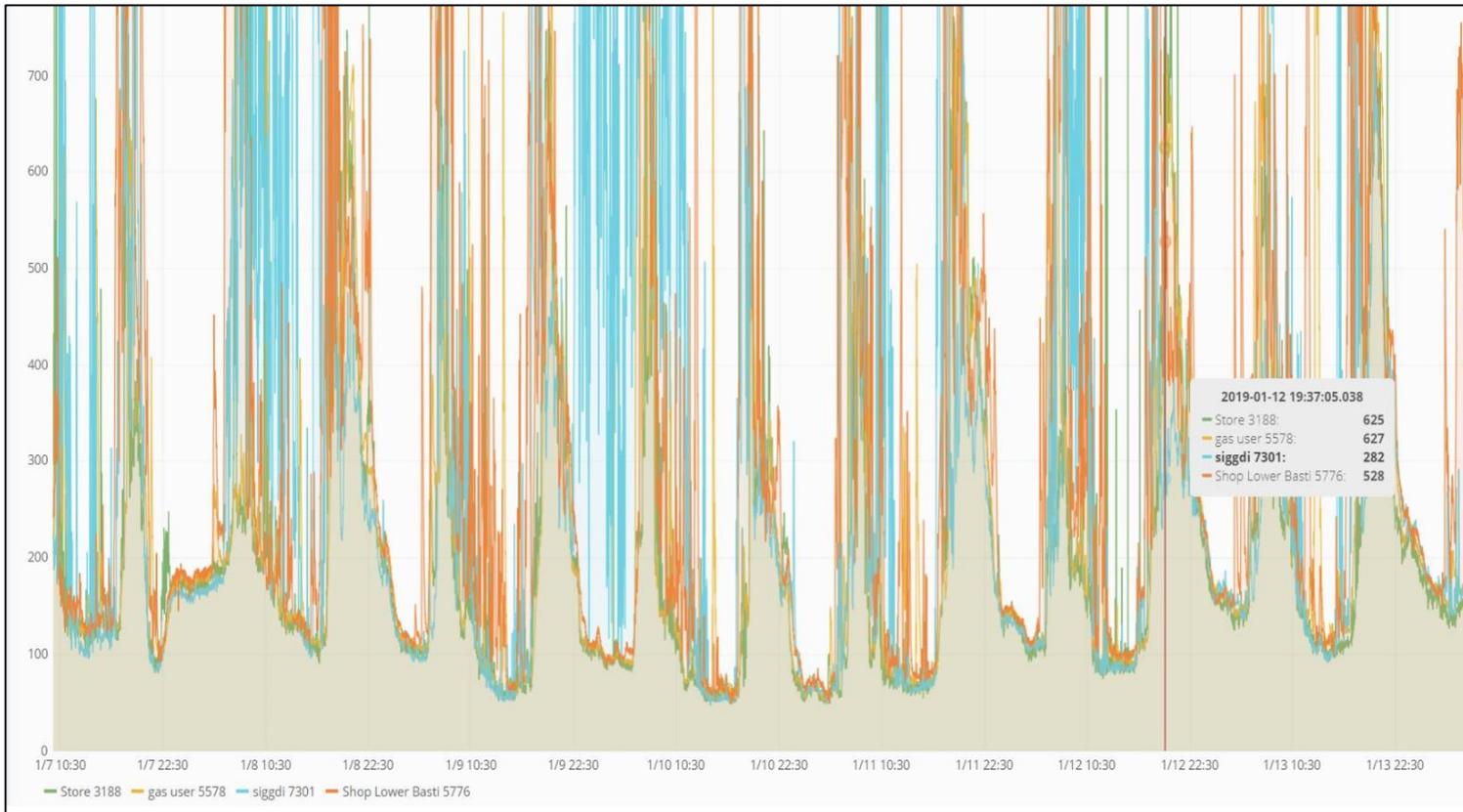
Monitor grid in close proximity to one another



- Daily pattern shows that cooking times result in major spikes
- 1000 set as monitor limit



- Non-coal cooking households have almost the same pollution load -> "Secondary smoking"



Workshop

- Design studies on air pollution with energy poverty focus
 - Use air pollution monitors
 - Complement air pollution monitoring with other sources of data suitable for your case
 - Try to find a specific target audience for the conclusions of your study

Case studies for group discussion

1. Oslo: Wood-fired heating
2. Krakow: Coal heating at home
3. London: Design of low pollution walks to bypass main streets
4. Brussels: Schools located along busy inner ring road
5. Korba, India: Explaining air pollution data
6. Stockholm: Clean air bike lanes

Case 1 Oslo: Wood-fired heating

- Wood fire can be a low cost way to heat your house. Can save money and also reduce use of fossil fuels
- But how can we understand its pollution consequences in an Oslo suburb?
 - Family houses not connected to central heating rely on either wood or electricity for heating in Oslo
- Design a study which examines air pollution in an Oslo suburb with independent houses



Case 2 Krakow: Coal heating

- Similar to the Oslo wood fire case, coal is used to heat homes in the winter.
- Coal generates more pollution, but alternative heating solutions might be lacking
- Design a study which examines air pollution in Krakow where home coal pollution affects city-wide air quality



Case 3: London Pollution-free Walkway

- Design a walking route which takes you away from city traffic
- Commuters walk between stations along the main road today. How can we find out what is a better route?



<https://urbanpartners.london/wellbeing-walk/>



Case 4: Brussels schools along inner ring road

- A number of schools are located along the Brussels inner ring road for easy drop off. This however also means increased pollution exposure for the children
- The popularity of diesel vehicles are reducing but are still among the highest in Europe
- Design a study to examine air pollution in Brussels schools



Case 5: Explaining data in Korba

- Journalists have placed 5 air pollution monitors on roof tops targeting coal industry (power plants, mines and waste ponds).
- The buildings are spread across town on various middle class houses and offices.
- Now they want your help to know what the recorded graphs of pollution mean.
- How do you make sense of the data from an energy poverty perspective? Or do you want to redesign the study before helping out?



Case 6: Air pollution affecting people on bicycles

- Many cities want residents to bike for improved health and reduced emissions
- But how do we know what the air quality is for bicycle commuters? Design a way to investigate air pollution effects of bicycle commuters in Stockholm (left photo below).



Group work

- Work in groups for 50 minutes
- Prepare to discuss these questions:
 - How will you use the monitors for your case?
 - What other details do you need to know to draw conclusions?
 - Who is the target audience for your conclusions?