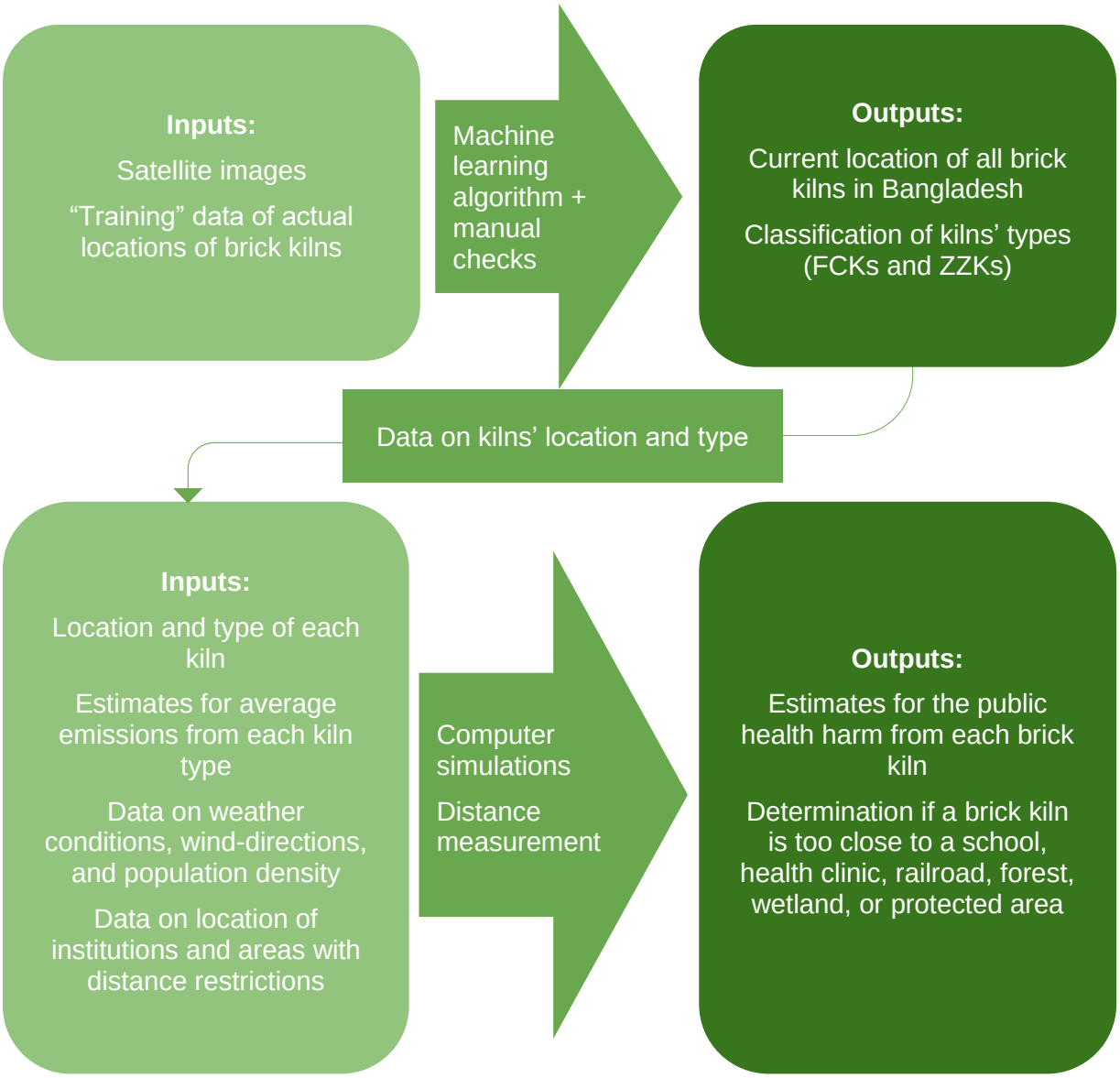
Explanatory note: Brick Kiln Tracker

The brick kiln tracker identifies brick kilns from satellite images[1]. It then estimates the health harm rate of each brick kiln based on its kiln type and location, simulating where the air pollution from the kiln travels and the population density in the areas affected by the kilns. It also calculates if the brick kiln is too close to the locations and areas that kilns are restricted from operating too close to.

Flow chart for Brick Kiln Tracker



[1]The satellite imagery is from PlanetScope/Skysat, Airbus Pleiades, and Maxar Worldview.

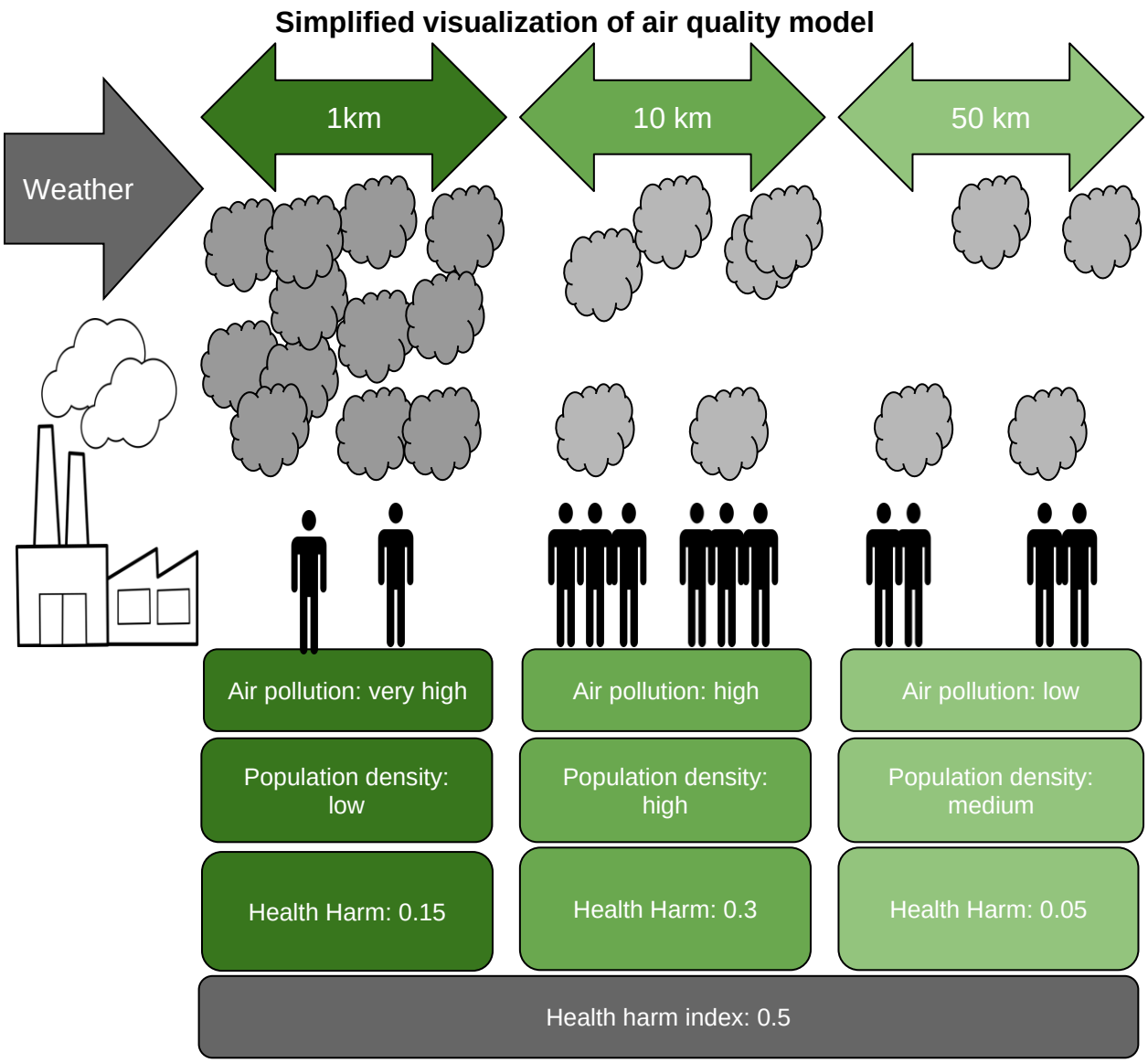


Figure notes: This is a highly simplified visualization of the air quality model used. The actual model estimates the health effects for multiple distances and in all directions of the brick kiln.

The model also measures the distances from each kiln to the nearest of six institutions and areas which brick kilns are regulated against being too close to according to the 2019 Brick Kiln Act. The tracker then indicates if the kiln is too close to any of the six regulated items. Brick kilns are regulated from being located within:

- 1km of educational institutions (“schools”)
- 1km of hospitals and health clinics (“clinics”)
- 1km of railroads
- 1km of Ecologically Critical Area (“ECA”)
- 2km of forests

- 1km of wetlands

Note: The data on locations of schools, clinics, railroads, forests, and wetlands are provided by the LGED.[2] The data on locations of protected areas are from the world database of protected areas.[3]

We have attempted to verify as many of these locations as possible, but if there are changes that have happened since the data was recorded, or if there are errors in the original LGED data, these may result in inaccuracies in our distances between the brick kilns and the closest protected institution/area. For instance, we physically checked the locations for a random sub-sample of 60 education facilities from 6 unions and found that on average, the margin of error was 292 meters.

However, the health harm rate calculation is not affected by whether the kiln violates any regulation or not.

How can the Brick Kiln Tracker be used?

The Brick Kilns Tracker does not give precise instructions about where to enforce environmental regulation, but it provides information designed to help in making that decision.

Frequently asked questions:

- **Question:** How can I create an account for the Brick Kiln Tracker?
    - **Answer:** Call (or WhatsApp) the number 01842079510 and provide us with your name, designation, email as well as your preferred username and password and we will create an account for you
- **Question:** Some brick kilns are more polluting than others, how does the Brick Kiln tracker take this into account?
    - **Answer:** The health harm rate is estimated based on the type of kiln (fixed chimney kilns and zig zag kilns) and the location of the brick kiln. Since fixed chimney kilns emit more pollution on average, they have a higher health harm rate on average. However, the brick kiln tracker does not take into account how much pollution is emitted from each individual kiln, but instead uses the same estimate of emissions for all kilns of the same type.

[2]The links from which we downloaded the data are:
https://data.humdata.org/dataset/bangladesh-education-facilities-by-lged
https://data.humdata.org/dataset/bangladesh-health-facilities-by-lged
https://data.humdata.org/dataset/bangladesh-water-bodies
https://data.humdata.org/dataset/bangladesh-forest-and-natural-parks
https://data.humdata.org/dataset/bangladesh-railways
[3]The exact location of the data is: https://www.protectedplanet.net/country/BGD

- **Question:** Why aren’t all Upazilas in all of Bangladesh visible in the Brick Kiln Tracker
    - **Answer:** The Brick Kiln Tracker is in an experimental stage, therefore it does not cover all of Bangladesh.
- **Question:** Why is the Brick Kiln Tracker showing some brick kilns that are now inactive?
    - **Answer:** The brick kilns' locations are taken from satellite data. We look at the satellite images and assess if the kiln was active in the last season or not. However, assessing if the kiln is active or not from the satellite imagery is challenging and sometime inactive kilns are included in the tracker.
- **Question:** Why are some brick kilns not shown in the Brick Kiln Tracker?
    - **Answer:** The kilns’ locations are taken from the satellite data using an artificial intelligence algorithm. The algorithm is not perfect in how it detects brick kilns. Sometimes it mistakes other structures that look like brick kilns being brick kilns. Sometimes it misses brick kilns when they are hard to distinguish from the environment surrounding them, for example in the dense brick kiln clusters.