

# ME-NET Stakeholder Engagement Board Meeting #3

March, 2025

**ME – NET**

# Agenda for today

- Welcome & introduction for any new members
- Our co-creative journey so far
- New content from Common Knowledge
- Your feedback & evaluation
- Our website & final event @UoL!

(remember to start recording)

Our co-creative  
journey so far.....



We invited you to  
co-design our app...

#### AIMS:

To pilot an integrated data platform (ME-NET) for regions with varying environmental and health data availability and quality, and with varying sources of methane emitters and super-emitters for, a) developing data synthesis approaches that are globally applicable, and b) training methane 'early warning' models that are robust to regional contexts.

#### OUTPUTS:

1. Machine learning algorithms showing the links between methane, ozone and health outcomes,
2. Phone/web app for health protection, tracking the impact of ozone on mental health & respiratory symptoms, & education in the UK and Ghana (including coastal sites).

## RESEARCH QUESTIONS

- To what extent can Deep Learning (DL) be used to develop an ozone early warning system that incorporates health data in two regions of the world with a) higher and, b) lower/middle income, reflecting wider global variation in data availability and quality?
- What are the most relevant health measures for exploring physical and mental health emergencies associated with methane and ozone concentrations in the two regions, and is it viable to use DL to predict rates of emergencies associated with air quality?
- What user functions would improve the visibility of climate change impacts, and how deliverable are these, given data availability and quality in regions?

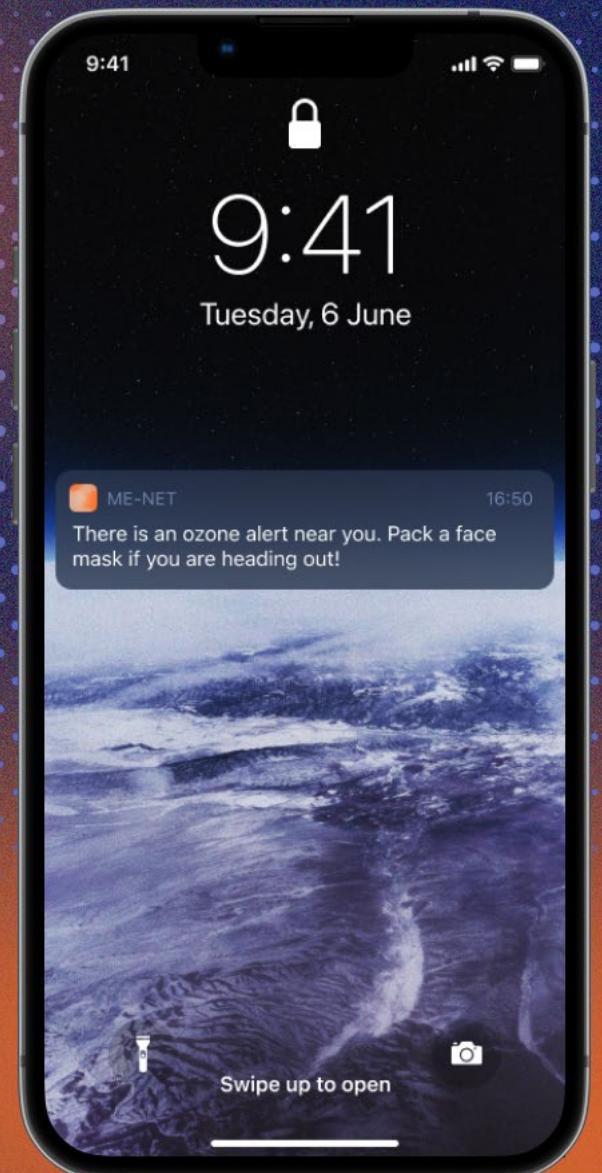
User functions

Educational modules

Self-reporting widgets

Climate and health map

Our original ideas  
about functions.....



# Mobilising citizen science for global social & ecological justice

## Alert Me

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

✉ Get Alerts

## Explore & Learn

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

🔍 Explore

## Our Data

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

# Learn more

## My Profile

Lorem ipsum dolor sit amet, consectetur adipiscing elit.

👤 Edit or Sign-up

We started with  
co-designing our  
educational modules....





**EDUCATIONAL MODULE  
VERSION I**

# The Perfect Storm

ME.NET

Ozone ( $O_3$ ) occurs naturally in the stratosphere, making the Earth habitable.

ME.NET



ME.NET

Ground level  $O_3$  occurs in the troposphere and effects the air people breath, drives global warming and produces health impacts.

ME.NET

# Your Feedback.

"It's difficult because there are some really scary statistics that you have on there, and there's a fine line between absolutely terrifying people that they won't go out and leave their front door again, to making them stop and think."  
(Lincolnshire)

"I guess when I look at it from my population, is that those images are great, the information is great, but - so what? And I guess that's the question we keep having to ask ourselves about this, isn't it? You've given me this information, but so what?"  
(NE Lincolnshire)

"If I know the concentration of methane in the environment, and my app is telling me that it's pretty high, what do I do next? And to me, that is the most important thing. If people don't know what to do with the information that they're processing, then we are going to increase their anxiety and make them more devastated with the information that they're consuming than before."  
(Ghana)

# Our response.

- Integrate 'ozone' and 'health modules to produce a 'climate and health' module, showing links to *impact on health including health protection recommendations*;
- Construct narrative through images rather than relying on words and scientific explanations that might be exclusionary;
- Relay to Common Knowledge suggestions about local language, auditory aid tools, flexible design for varying download speed/limit etc;
- Exclude *detailed* narrative suggesting ozone impacts mental health negatively - inconsistent evidence & high potential to trigger harmful reactions.

**EDUCATIONAL MODULE  
VERSION II**

The image features a man in the foreground, shown from the chest up, wearing a light-colored face mask. He has short dark hair and is looking slightly downwards and to his left with a neutral expression. The background is a dense, abstract pattern of small, colored dots in shades of orange, yellow, and blue, representing air pollutants. The overall composition suggests a theme of environmental health and personal protection.

A black and white photograph of a man from the chest up, looking down with his right hand resting against his mouth as if he is coughing or having trouble breathing. He has short dark hair and is wearing a light-colored button-down shirt. The background is a soft-focus gradient from orange on the left to blue on the right, with several small, dark circles containing the chemical formula "O3" floating around him, representing ozone molecules.

ME - NET

Ozone is produced when sunlight mixes with emissions from factories, cars, houses, and agriculture.

ME = NET

Ozone

☰ Menu

Ozone is produced when sunlight mixes with emissions from factories, cars, houses, and agriculture.

More detail here. *Maecenas nisi nisl, sollicitudin nec cursus ut, vulputate quis nibh. Duis elit lectus, semper sit amet bibendum non, gravida non leo. Aliquam exstet volutpat. Aliquam at tortor egestas, suscipit justo quis, ullamcorper neque.*

Ozone emissions

More detail here. *Maecenas nisi nisl, sollicitudin nec cursus ut, vulputate quis nibh. Duis elit lectus, semper sit amet bibendum non, gravida non leo. Aliquam exstet volutpat. Aliquam at tortor egestas, suscipit justo quis, ullamcorper neque.*

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The image shows a web page header for 'ME+NET'. The main title 'How can I protect my health?' is displayed in large, bold, dark blue letters. Below the title is a silhouette of a person's head and shoulders, facing right and resting their chin on their hand in a thoughtful pose. The background has a subtle dotted pattern and a color gradient from blue to orange. At the bottom, there is a horizontal navigation bar with a series of dots and the text 'Protecting your health'.

# Your Feedback.

“..need to think a little bit about who is the audience for this. The audience is parents and adults, then you would go with one route, if another audience is the children themselves, then it might be that they need a different version.”

(Lincolnshire)

“...it's clear that in Ghana, one of the major sources of methane is also from the landfills...I don't think I saw, do we have that in the animations?... you know, for instance, if it's a dump site, people usually go to scavenge...depending on how close you are, your exposure rates could also be different...”

(Ghana)

“..I think there are bits to combine from both of them..The chemicals, they shouldn't be there, it's not really doing anything, but it looks intimidating...what I preferred about the second one, it visualises that the specific connection was the same happening in the atmosphere and in the different industries...quite a few of these silhouettes are coded pretty white and pretty male, but at least they're silhouettes.”

(NE Lincolnshire)

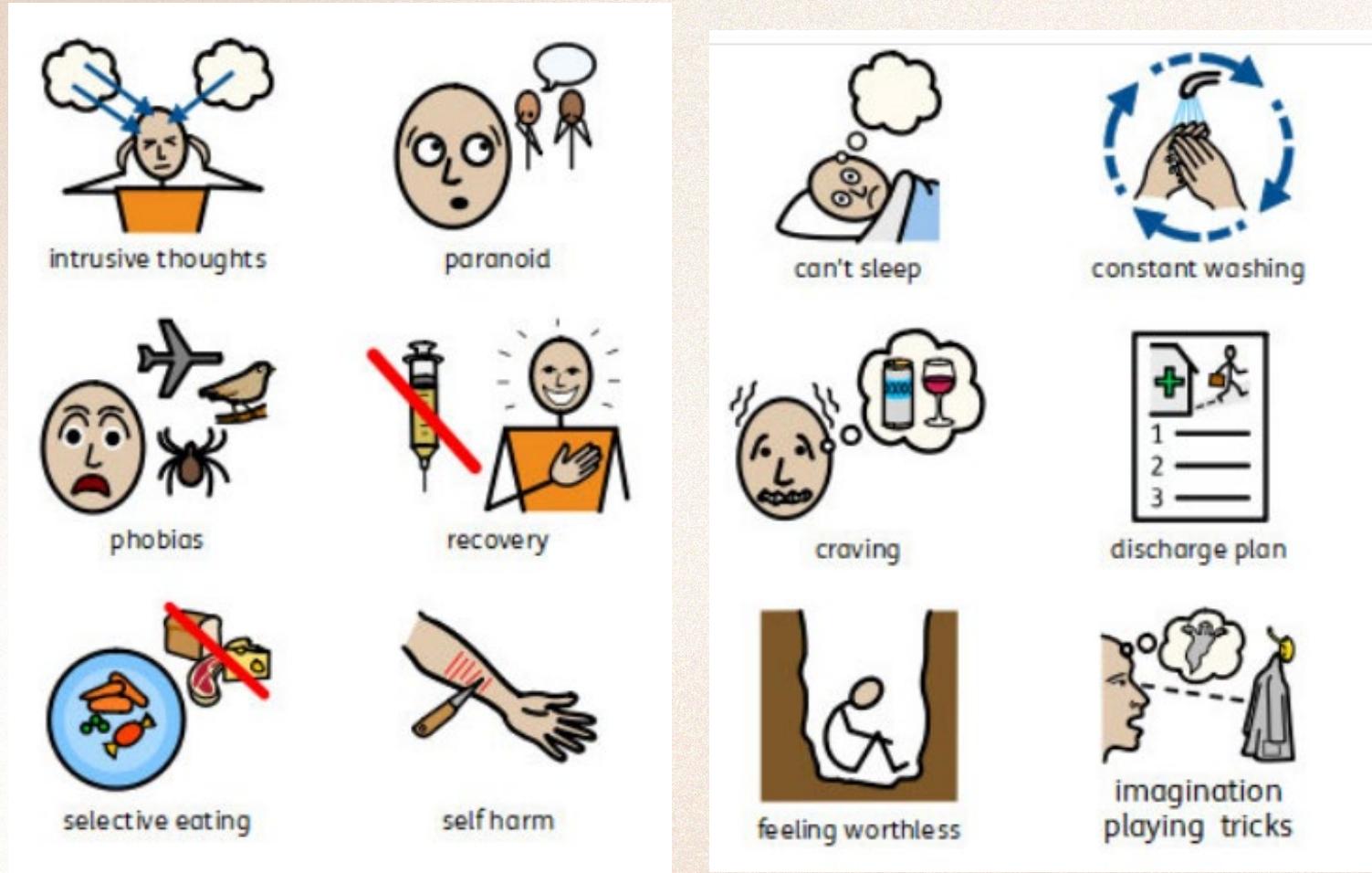
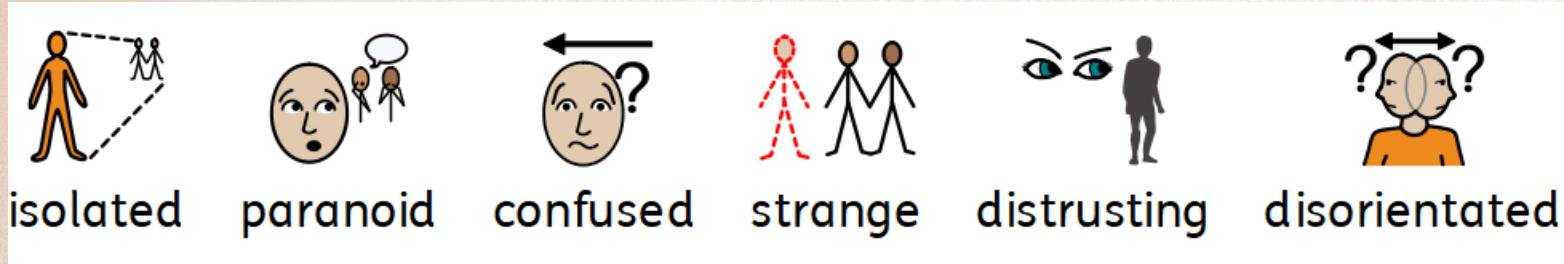
- Suggested to Common Knowledge that we combine the slide sets as indicated;
- Need to include waste dumps to increase relevance for audience in Ghana;
- Need to consider EDI;
- Need to improve scientific accuracy (e.g., methane isn't a visible gas);
- Overall, much improved from the first version!

# Our response.

**SELF REPORTING**

**WIDGETS**

Our original idea was to provide a visual self-reporting option using existing mental health widgets...



# Your Feedback.

"Given that for the general population, the key thing will be picking up on slight changes (and perhaps within a fairly low-level range of 'symptom' intensity), there's potential that it's distressing to put fairly common day-to-day experiences on graphical continua with very severe symptoms."

(Lincolnshire)

"These are widgets that exist, and there is an element of pragmatism that if something exists in its effective, use it rather than design from scratch. But if it's not effective, and it's confusing, or it has negative effects on people, then don't use it."

(NE Lincolnshire)

"I think some of them are really problematic as they dumb down profound clinical issues. So in a way they need to be more generic. For instance, the constant washing one is great - it's clear and not loaded. But at the other end of the spectrum the one for what seems to be getting over drug addiction is ridiculous."

(Lincolnshire)

If we are going to use visual self-reporting tools, we should probably co-design them with relevant communities rather than rely on existing tools:

- Too many risks of using existing widgets in a non-clinical setting;
- Some are very confusing;
- Stick to validated metrics for now, and seek to validate some co-designed visual tools in the future.

## Our response.

**MAP DEVELOPMENT**

**VERSION I**

Methane

☰ Menu

Temperature

Ozone

Health Outcomes

Methane

kg/hr

1935+  
1720  
1505  
1290  
1075  
860  
645  
430  
215  
0

Kumasi

Prestea

Berekum

Sept 24



2017 | 2018 2019 2020 2021 2022 2023 2024



## Select Year Range

Show data from between these years.

September 2019 ↗

November 2022 ↗

## Methane Emissions

Show emissions within this range.



645 kg/hr

↔ 1505 kg/hr

Advanced



✓ Apply filters

Sunyani

Kumasi

Abofour

High Health Risk

Methane ⓘ

1311 kg/hr

Temperature ⓘ

41 °C

Ozone ⓘ

180 DU

Health Profile ⓘ

0.8 Vulnerability

Rate per population of acute/chronic respiratory emergencies, acute/chronic mental health emergencies.

Learn more about how we use data [here](#).

"The health profile, I'm not too sure what that value adds, I don't know if that's a high health profile or a low health profile when it's 0.8."

(NE Lincolnshire)

"Those communities that are close to these landfills should also be indicated in their maps so that they can have a very first-hand information because they are more mostly close to the dump and the damage."

(Ghana)

"We have 10 little images of people, what we normally do with our infographics is have 10 outlines, and then just shared in across the amount." (Lincolnshire)

"I think the layering makes a lot of sense. This has the right stuff on it, it's just competing with all the other stuff. There is a visual thing that says high health risk. If some of the other stuff was hidden within that layer, and just high health...was the thing that popped out at you..."

(NE Lincolnshire)

# Your Feedback.

- We like the idea of using images rather than numbers to display risk e.g., 8/10 little people;
- We are developing the map prototype for the UK – extending to Ghana will need to include key landscape features like waste dump sites – we will discuss when we visit Ghana in April!
- Colour will be very important for representing rates, relationships between factors etc.,
- We asked Common Knowledge to give us some options for how more visual features/less text maps might look...

## Our response.

**MAP DEVELOPMENT**

**VERSION II**

**Take 5mins to play around with the tool,**

**Think about usability, accessibility,  
usefulness of the visual display  
features**

**Let's discuss:**

**- What we like**

**- What couple be improved**

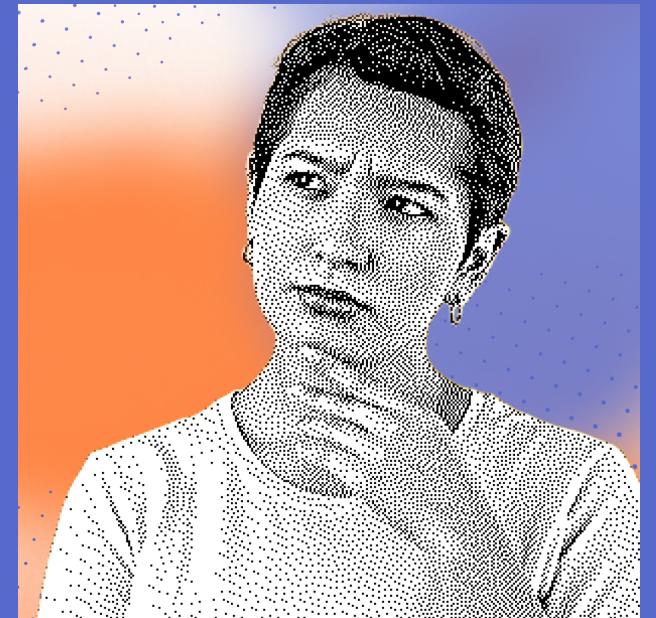
## Some challenges.

- LSOAs are very small – how to display multiple ‘layers’ of information – GIS solutions needed;
- We have linked health data to ‘AURN’ sites (Automatic Urban Rural Network), but there are only a couple in Lincolnshire – can we display/forecast for LSOAs without AURN sites directly in them?
- What can we learn from strengths/limitations of UK network for potentially informing network set-up in Ghana?

**Limited time left on the project with our collaborators Common Knowledge:**

- Need to prioritise features;
- Revisit feature feasibility;
- Explore opportunities for future funding to continue prototype development;
- Begin synthesising our observations and findings for Wellcome!

**Decisions & directions.**



- Able to forecast ozone for the UK;
- Forecasts predict whether ground ozone is 'low', 'medium', 'high' or 'very high';
- Limited data access prevents real-time forecasts – we are working on possibilities;
- Unable to forecast for Ghana – we are working on future funding opportunities to address data scarcity!



The image shows the homepage of the ME-NET website. The background features a light gray map of Africa with white cloud icons. At the top left is the 'ME-NET' logo, and at the top right is a 'Menu' button. The main title 'Mobilising citizen science for global social & ecological justice' is displayed in large, bold, black font across the center of the page. Below the title are four rectangular call-to-action boxes: 'Alert Me' (with an orange border), 'Explore & Learn', 'Our Data', and 'My Profile'. Each box contains placeholder text and a corresponding button.

ME-NET

≡ Menu

# Mobilising citizen science for global social & ecological justice

**Alert Me**  
Lorem ipsum dolor sit amet, consectetur adipiscing elit.  
[Get Alerts](#)

**Explore & Learn**  
Lorem ipsum dolor sit amet, consectetur adipiscing elit.  
[Explore](#)

**Our Data**  
Lorem ipsum dolor sit amet, consectetur adipiscing elit.  
[Learn more](#)

**My Profile**  
Lorem ipsum dolor sit amet, consectetur adipiscing elit.  
[Edit or Sign-up](#)

- Good progress made on educational module and map with your help!
- Decision to integrate climate and health features rather than separate ozone and health modules;
- Decision to simplify visual components on map;
- Features still to design: 'find out more', navigation tools for accessibility etc.

The screenshot shows the ME-NET website homepage. At the top left is the logo 'ME - NET'. At the top right is a 'Menu' button. The main title 'Mobilising citizen science for global social & ecological justice' is displayed prominently in large, bold, black font over a background image of a map of Europe with white clouds. Below the title are four grey rectangular buttons with rounded corners, each containing text and a small icon. The second button from the left, labeled 'Explore & Learn', has an orange border around its text and icon, indicating it is the active or selected option. The other three buttons are 'Alert Me', 'Our Data', and 'My Profile', each with a dark blue 'Get Alerts', 'Learn more', and 'Edit or Sign-up' button respectively.

ME - NET

≡ Menu

# Mobilising citizen science for global social & ecological justice

Alert Me

Explore & Learn

Our Data

My Profile

Get Alerts

Explore

Learn more

Edit or Sign-up

- Original plan was an additional embedded 'layer' of information via 'find out more' and navigation prompts;
- Links to data sources (e.g., Sentinel 5P satellite mission for methane data);
- Still a possibility, but not a priority for now...

The screenshot shows the ME-NET website homepage. At the top left is the logo 'ME-NET'. At the top right is a 'Menu' button. The main title 'Mobilising citizen science for global social & ecological justice' is centered over a grayscale map of Europe with white clouds. Below the title are four rectangular boxes: 'Alert Me' (with 'Get Alerts' button), 'Explore & Learn' (with 'Explore' button), 'Our Data' (with 'Learn more' button, highlighted by an orange border), and 'My Profile' (with 'Edit or Sign-up' button).

ME-NET

Mobilising citizen science for global social & ecological justice

Alert Me

Explore & Learn

Our Data

My Profile

Get Alerts

Explore

Learn more

Edit or Sign-up

- Relatively straight forward functions and features;
- We took on board suggestions for a 'mini-me' linked profile for parents supporting children;
- Similar additional carers linked profile;
- Discussion with UCL @ UKHSA air quality event – could we allow parents to select 'mini-me' schools to identify those at facilities with current air quality monitoring schemes – pretty cool!
- All plausible!



The image shows a mockup of the ME-NET website homepage. The background features a light gray silhouette of the United Kingdom map with white clouds floating above it. In the top left corner, the "ME-NET" logo is displayed. In the top right corner, there is a "Menu" button with three horizontal lines. The main title "Mobilising citizen science for global social & ecological justice" is centered in large, bold, black font. Below the title, there are four dark gray rectangular cards with rounded corners, each containing a section title and a brief description. The first card is titled "Alert Me" and contains placeholder text "Lorem ipsum dolor sit amet, consectetur adipiscing elit." with a "Get Alerts" button. The second card is titled "Explore & Learn" and contains placeholder text "Lorem ipsum dolor sit amet, consectetur adipiscing elit." with an "Explore" button. The third card is titled "Our Data" and contains placeholder text "Lorem ipsum dolor sit amet, consectetur adipiscing elit." with a "Learn more" button. The fourth card is titled "My Profile" and contains placeholder text "Lorem ipsum dolor sit amet, consectetur adipiscing elit." with an "Edit or Sign-up" button. The "My Profile" card is highlighted with an orange border.

Decision to focus on 'Explore & Learn' and 'Our Data' for Lincolnshire due to data scarcity in Ghana;

Attend our in-person event in May/April to find out how we plan to address data scarcity!



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ME-NET

Mobilising citizen science for global social & ecological justice

Alert Me

Explore & Learn

Our Data

My Profile

Get Alerts

Explore

Learn more

Edit or Sign-up

**Tell us what you would like to get out of our in-person event in May!**

- Think about discussions you might like us to have as a community;
- Opportunities you would like on the day;
- People you would like to see attend the event!

Take a moment to reflect.



# Next steps

## CONTENT DEVELOPMENT

- Nearly at the end of our ME-NET journey \*for now\* - excellent progress!

## FINAL SURVEY

- Your final thoughts will be captured following our in-person events, including if you would like to be involved in future funded opportunities to further develop the ME-NET application;

## MEETING TRANSCRIPTION

- All recorded meetings will be transcribed;
- Transcriptions will be uploaded to Microsoft Teams sites
- Opportunity to feedback.

## FUTURE PLANS

- Waiting on the outcome of 3 bid proposals to see what our options are....
- Will continue to look for funding opportunities....
- Post-event survey to capture thoughts about next steps....

## In-Person Events

Lincolnshire: May 6<sup>th</sup>, 10-4pm, Bridge

NE/N Lincolnshire: May 20<sup>th</sup> 2-5pm, Centre4

Ghana: April 5-12<sup>th</sup> Accra & Takoradi venues/dates TBA

Thanks for  
attending & see  
you in  
April/May!

March, 2025