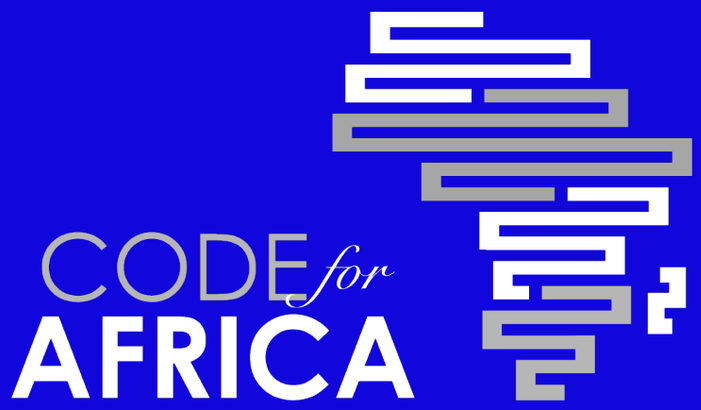
The Data Continent

Code for Africa and data-driven journalism



@ChrisRoper

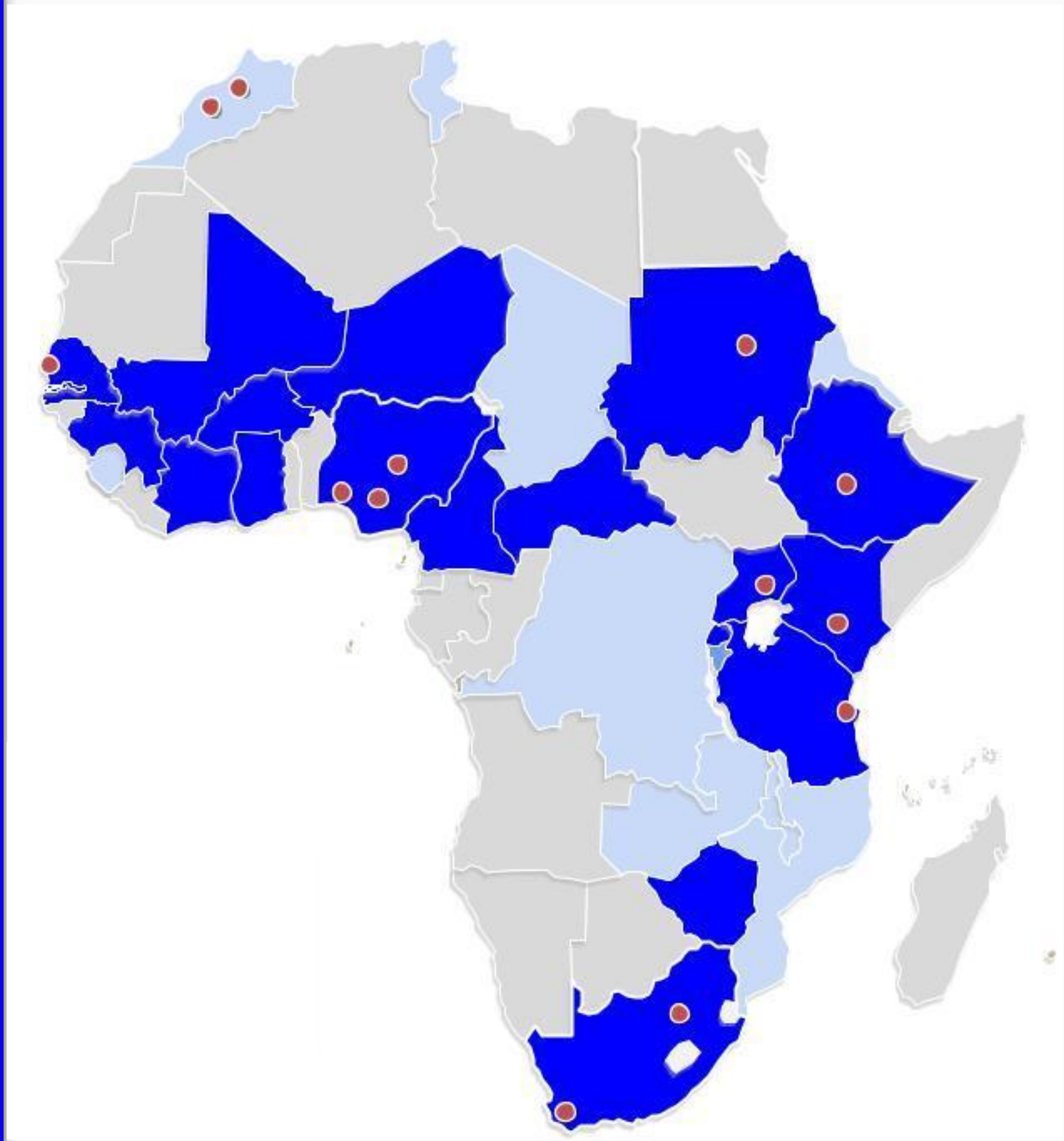
Chris Roper

- Chris Roper is deputy CEO for Code for Africa, and a director for the African Network of Centres for Investigative Reporting.

- Prior to joining CfA, Chris was editor-in-chief of the Mail & Guardian, and editor-in-chief of Africa's largest online publisher, 24.com.

Continental Footprint

- Africa's largest **indigenous network** of civic technology labs
- Underpinned by **78** full-time staff (analysts, technologists, & digital creatives) in **18** African countries.
- Major data and digital journalism projects in a further **11** countries
- A sister network of independent investigative newsrooms in **22 countries**



CODE for AFRICA

100+ Projects

Our portfolio ranges from cutting edge **forensic data** & **fact-checking** initiatives to **graphic journalism** and **multimedia tools**, including **data graffiti**, supported by **civic bots** and **forensic data analysis** with a raft of **digital security** tools for **investigative newsrooms**.

CODE for AFRICA

Seed Funding

Innovation isn't cheap. We **neutralise** some of the initial **risk and cost** by offering fast-track **seed grants** and **technical support** for **proof-of-concept** experiments with **leapfrog technologies** or new **audience strategies** and **revenue models**.

People Power

CODE for AFRICA

We don't parachute in. Our teams are in-country and understand local context. We build dynamic **ecosystems** and **community** networks to ensure partners have **local talent**. Our deep local roots also help amplify **local impacts**.

CODE for AFRICA

Our Reality

We're **realistic about data** availability: this is the Kenyan Land Registry. Half our job is digitising these kinds of **deadwood records** to give both newsrooms and citizens **accessible** + **actionable information**.

Does It Work?

Examples of data-driven civic engagement impacts

CODE for AFRICA

https://oxpeckers.org/minealert/

OXPECKERS
Investigative Environmental Journalism

HOME INVESTIGATIONS TOOLS ABOUT US NEWS

LATEST #MINEALERT INVESTIGATIONS

Parliament probes Mintails toxic legacy

Parliamentary committee asks for explanations following Oxpeckers

TOOLS

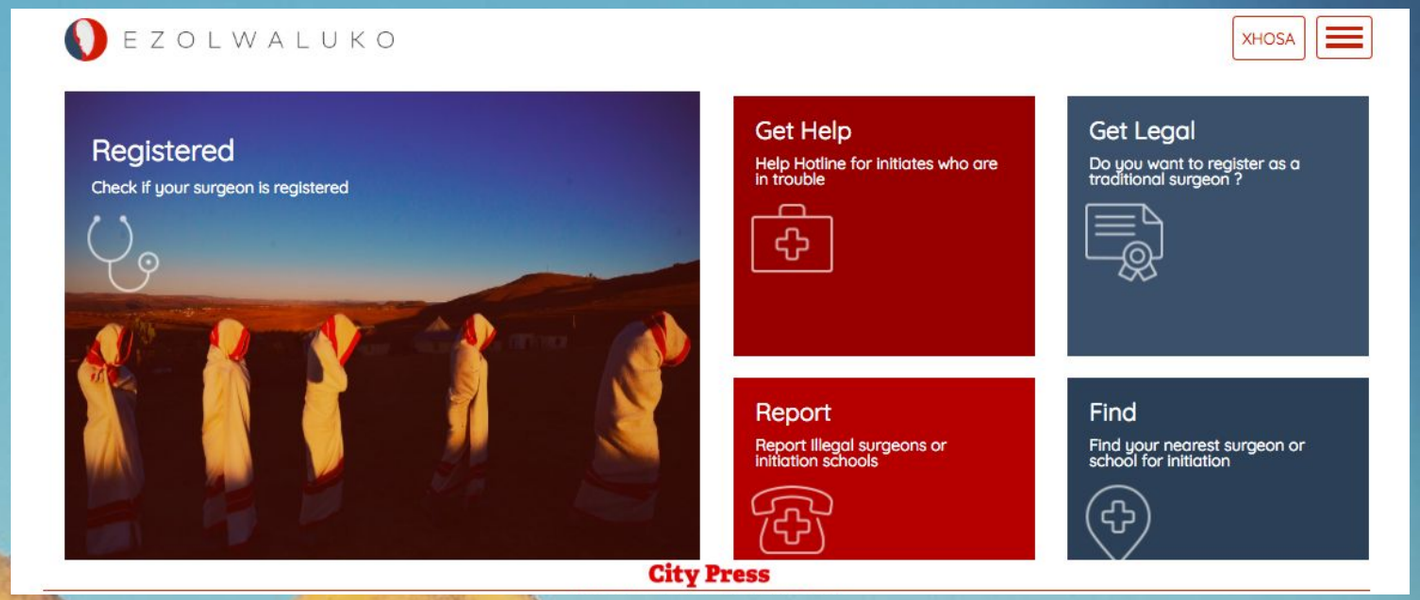
#MINEALERT

#MineAlert allows you to track and share mining applications and licences

CLIMATRACKER

Use ClimaTracker to track weather changes and how these will affect you

https://ezolwaluko.org.za/



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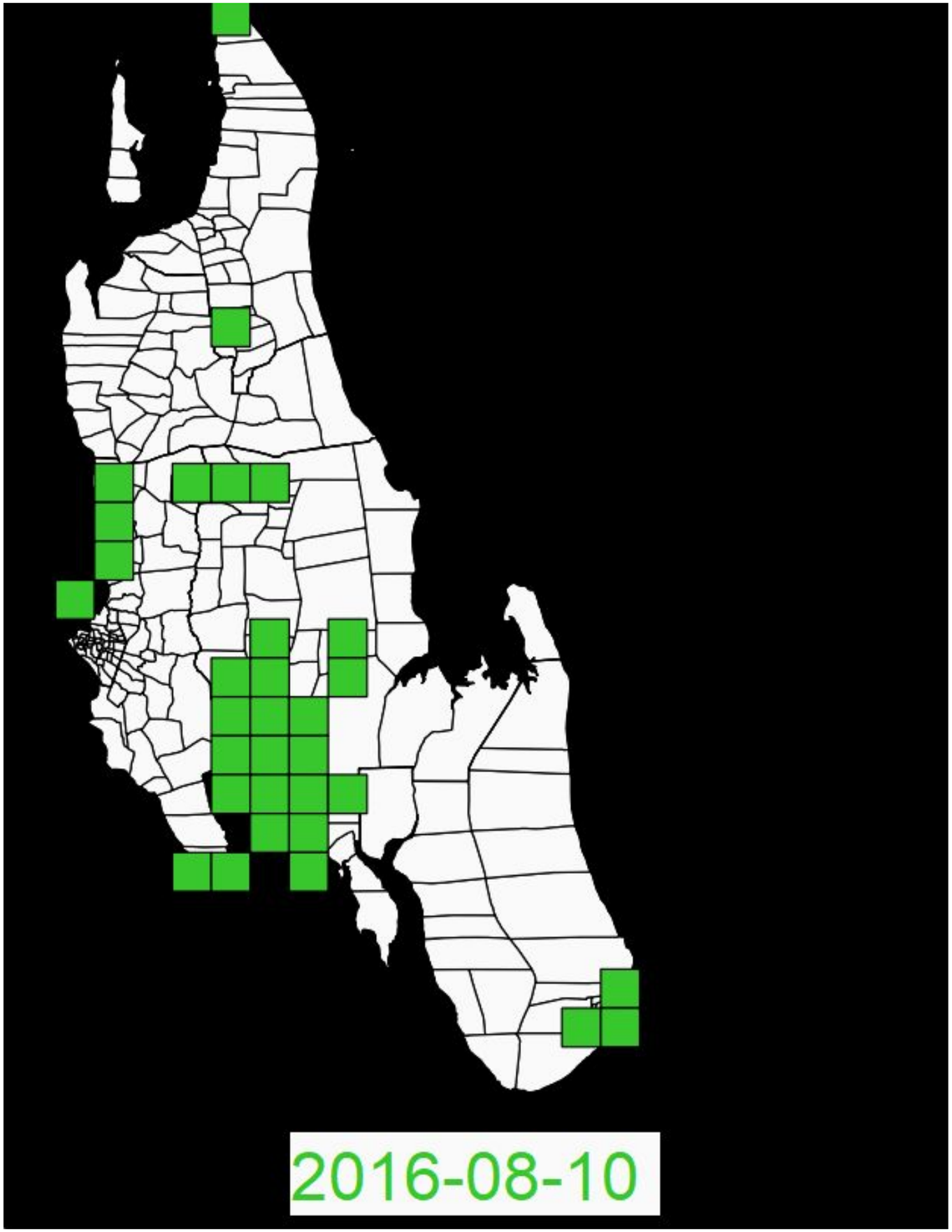
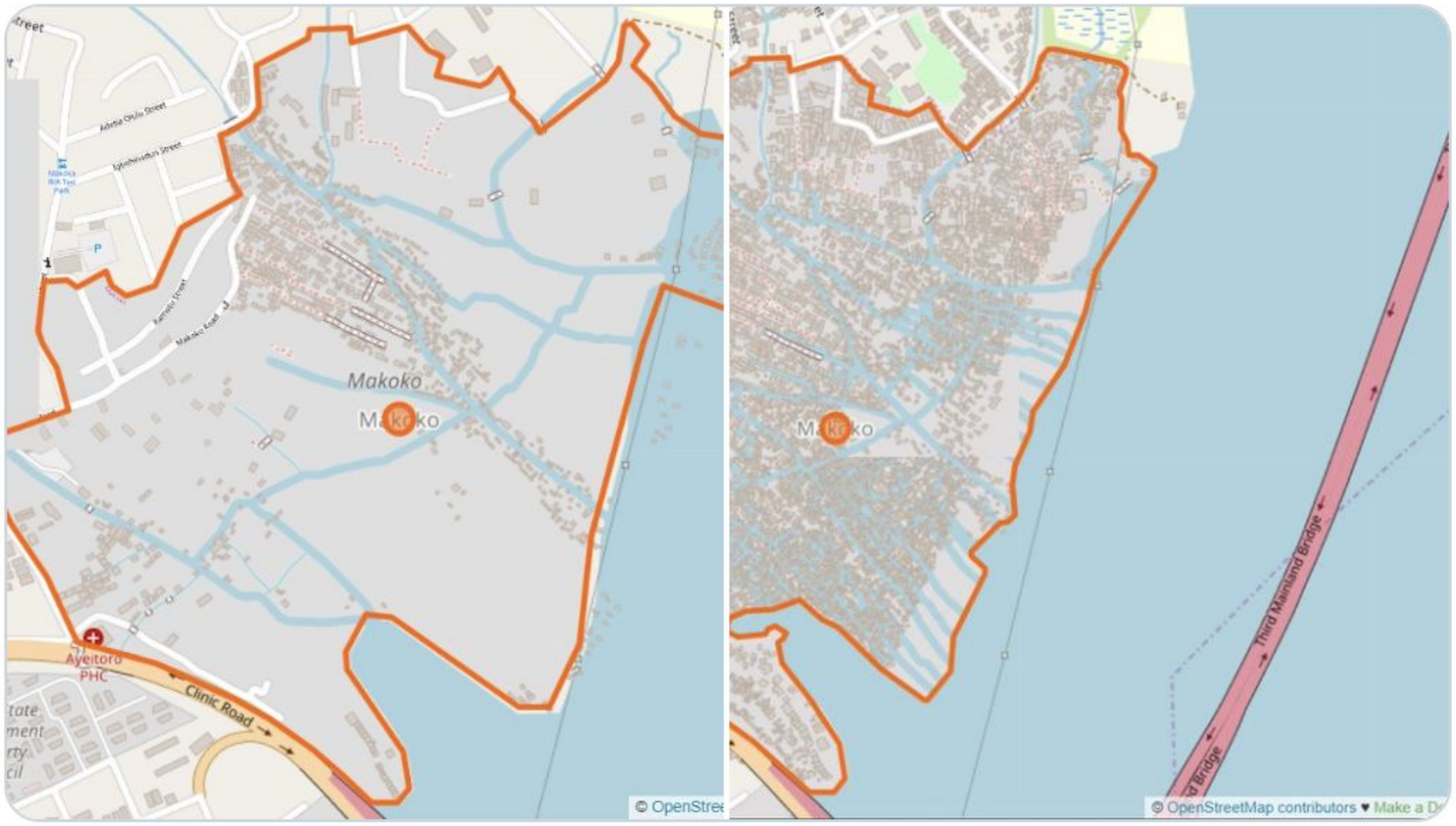
http://www.zanzibarmapping.com



PUTTING NIGERIA'S
FLOATING SLUM ON THE MAP

OpenStreetMap NG
@OSMNigeria

Before and after pictures of Makoko, Lagos, Nigeria in just one week!!!
The amazing power of crowdsourcing, Opensource and OSM.
#MapMakoko #OSMGeoweek2019



3:31 AM · Nov 18, 2019 · Twitter for Android

81 Retweets **225** Likes

https://ancir.github.io/mozambique/bigshots/

The Miners of Mozambique

Who are the people behind the mining industry in Mozambique? A partial answer can be found by connecting minerals concessions to the people who control the licensed exploration and mining companies.

Warning: this graphic is currently based on unverified concessions and company control data from on-line sources. Please be sure to independently verify any linkages before citing this page.

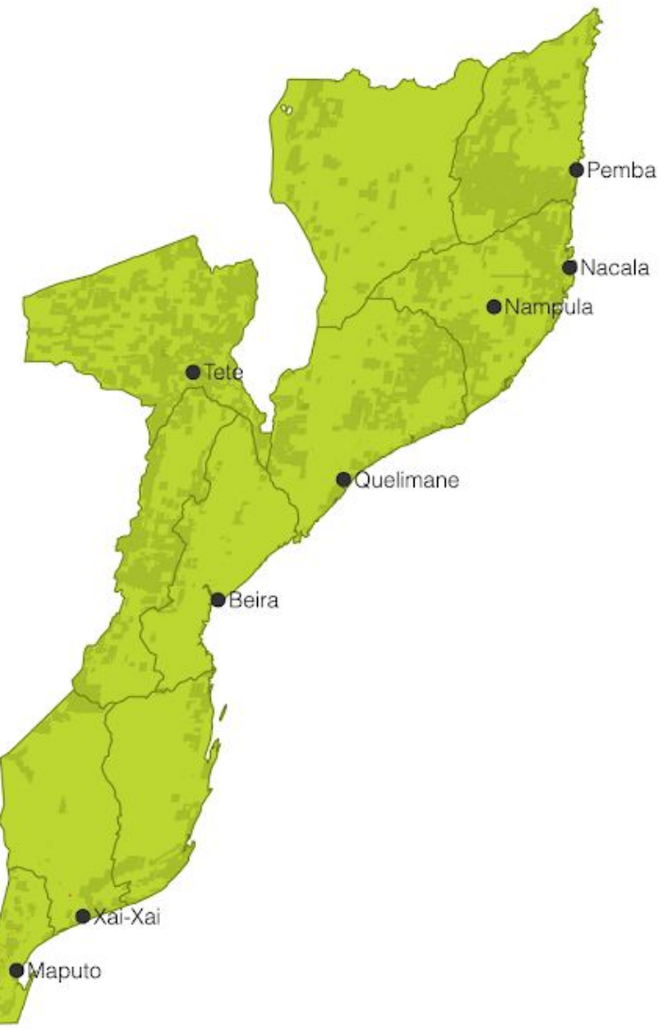
PEOPLE

Cong Chuanyou	164
Tao Wu	136
Nicholas John Gore Graham	106
Nicolas John	96
Bo Hu	80
Faisal Kedairy	77
Matthew Giles Yates	68
Robert Arthur Behets	63
Peter John Christians	63
Panagiotis Efstatiou	63
Gregory James Sheffield	59
Hui Sun	53
Mariano de Araújo Matsinhe	51
Francisco António Xavier dos Santos	51
Peter John Prickett	51
Egidio Lúcia Caetano José Madeira	49
Zhiyong Xu	46
Hong Ye	39
Cláudio Manuel Loureiro de Nogueira	38
Gary Denham Seabrooke	37

COMPANIES

Rovuma Resources, Limitada	96
Omegacorp Minerais, Limitada	63
Administracao Nacional de Estradas	60
Africa Great Wall Cement Manufacturer, Limitada	57
Vale Projectos e Desenvolvimento Moçambique, Limitada	52
ZAMEX - Zambeze Explorações, Limitada	51
Africa Yuxiao Mining Development Company, Limitada , Cong Chuanyou	47
Cimentos de Moçambique, S.A.R.L.	44
Lalgi Maugi	43
Hong Ti Mineral, Limitada	39
Capitol Resources, Limitada	38
África Great Wall Mining Development Company, Limitada	37
Empresa Moçambicana de Exploração Mineira, SA	37
Vale Moçambique, Limitada	33
Rachana Global, Limitada	33
HS Mining, Limitada	31
Escola de Condução ABC, Limitada	31
África Consultoria & Projectos, Limitada	29
DH Mining Development Company, Limitada	29
Siexpo, Limitada	28

CONCESSIONS



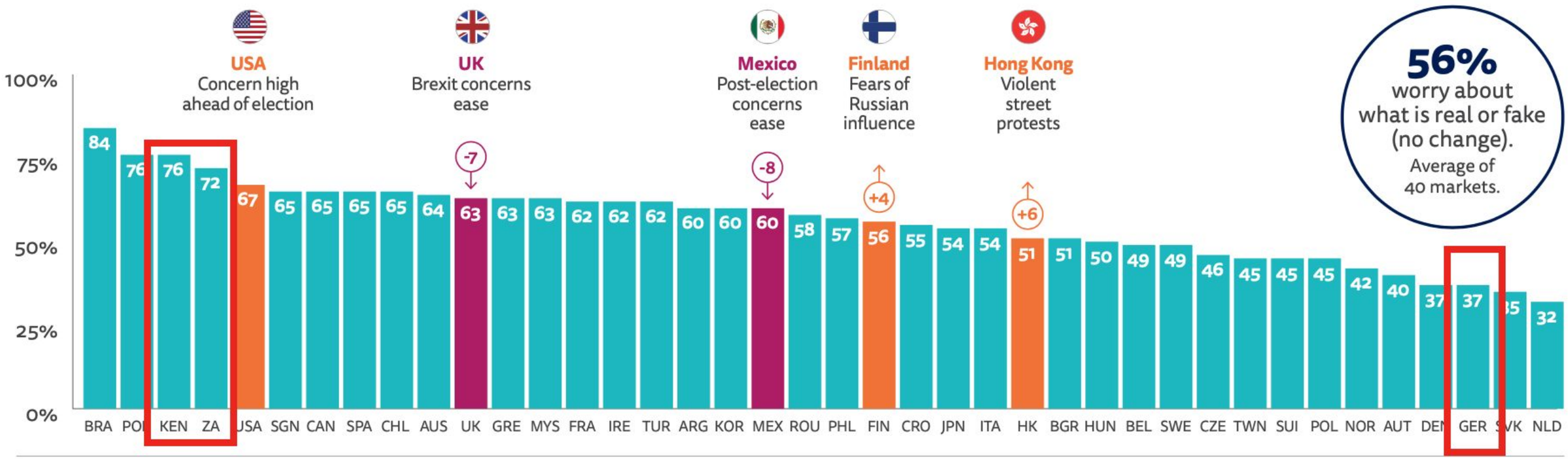
Produced by the African Network of Centers for Investigative Reporting (ANCIR) and Resources for Development Consulting for the Centro de Integridade Publica.

Research + Data	CivicSignal
Fact checking	PesaCheck
Investigations	ILab
Training	Academy
Data-driven content	WanaData

CODE for AFRICA

One journey

PROPORTION CONCERNED ABOUT WHAT IS REAL AND WHAT IS FAKE ON THE INTERNET WHEN IT COMES TO NEWS – ALL MARKETS



Q_FAKE_NEWS_1. Please indicate your level of agreement with the following statement. Thinking about online news, I am concerned about what is real and what is fake on the internet. *Base: Total sample in each market ≈ 2000, Taiwan = 1027.*

CODE for AFRICA

CivicSignal

Code for Africa's research team, implementing, conducting and publishing research projects focused on African media ecosystems.

Media Cloud is an open-source platform for media analysis.

Topic Mapper

Dive deeply into coverage of an issue by collecting more stories, analyzing influence, and slicing and dicing the stories to discover narratives.

Explorer

Get a quick overview of how your topic of interest is covered by digital news media by exploring attention, language, and entities.

CODE for AFRICA

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Code for Africa's research team, implementing, conducting and publishing research projects focused on African media ecosystems.

PESACHECK

Decoding the numbers that shape our world

Citizens need accurate information to make decisions. PesaCheck is a fact-checking initiative to verify often confusing numbers quoted by public figures across East Africa, supported by International Budget Partnership and Code for Africa affiliates in Kenya, Tanzania & Uganda.

CODE for AFRICA

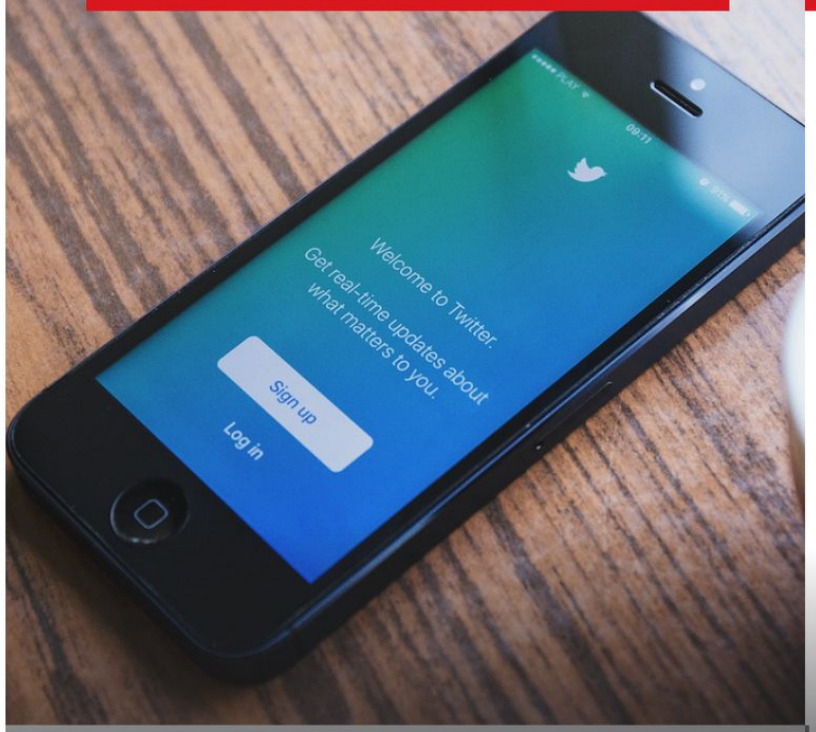
PesaCheck

Code for Africa's pan-African fact-checking initiative

iLAB Featured Dossiers.

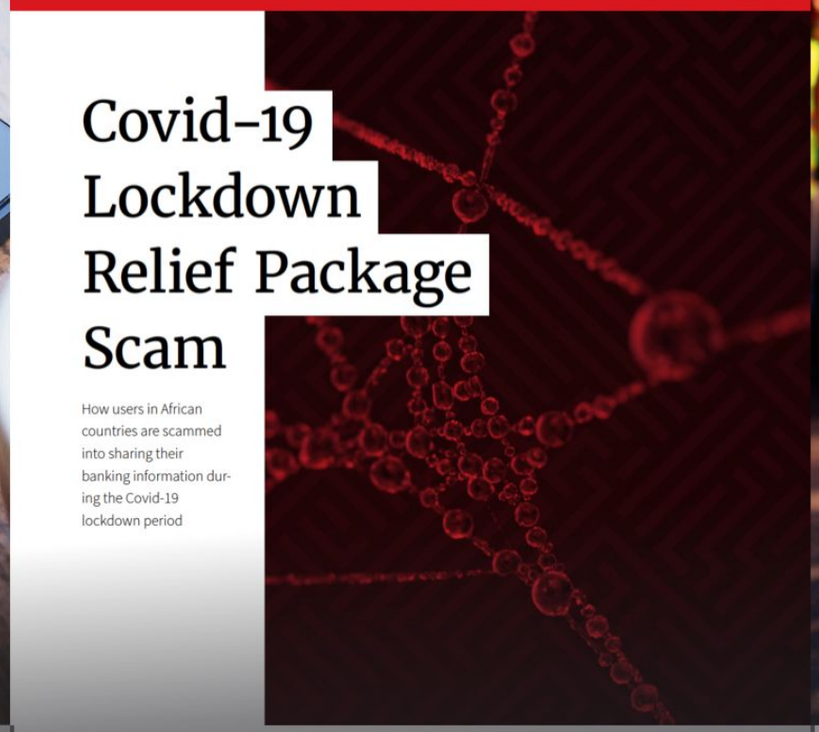
ANCIR partners with investigative newsrooms to produce data-driven investigative reports using social network analysis, entity analysis and open source intelligence.

ONLINE POLITICAL TROLLS



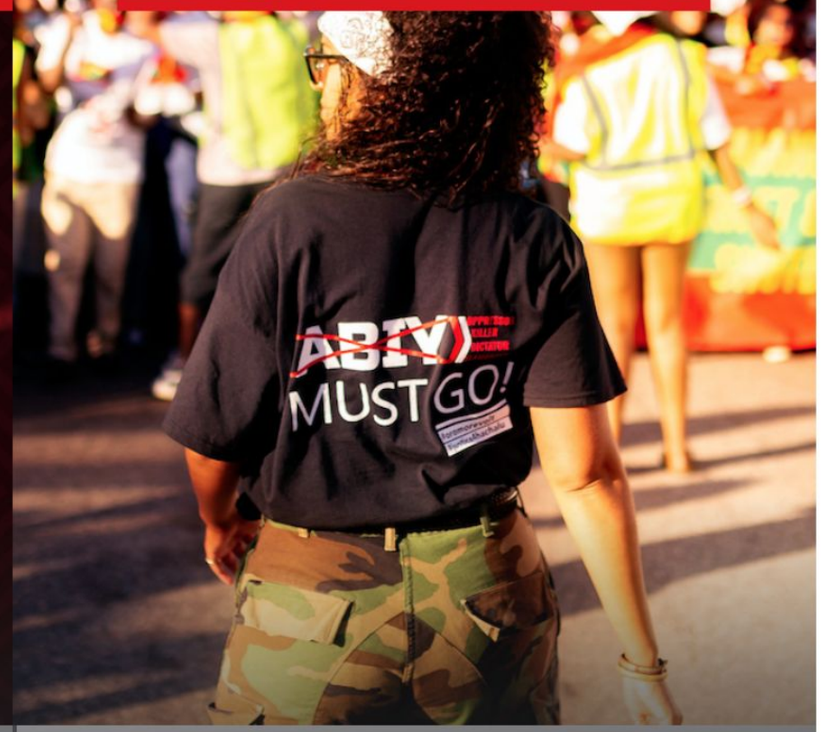
Political trolls

COVID-19 LOCKDOWN PACKAGE SCAM



Covid-19 packeage scam

ETHIOPIA'S HACKTIVISM

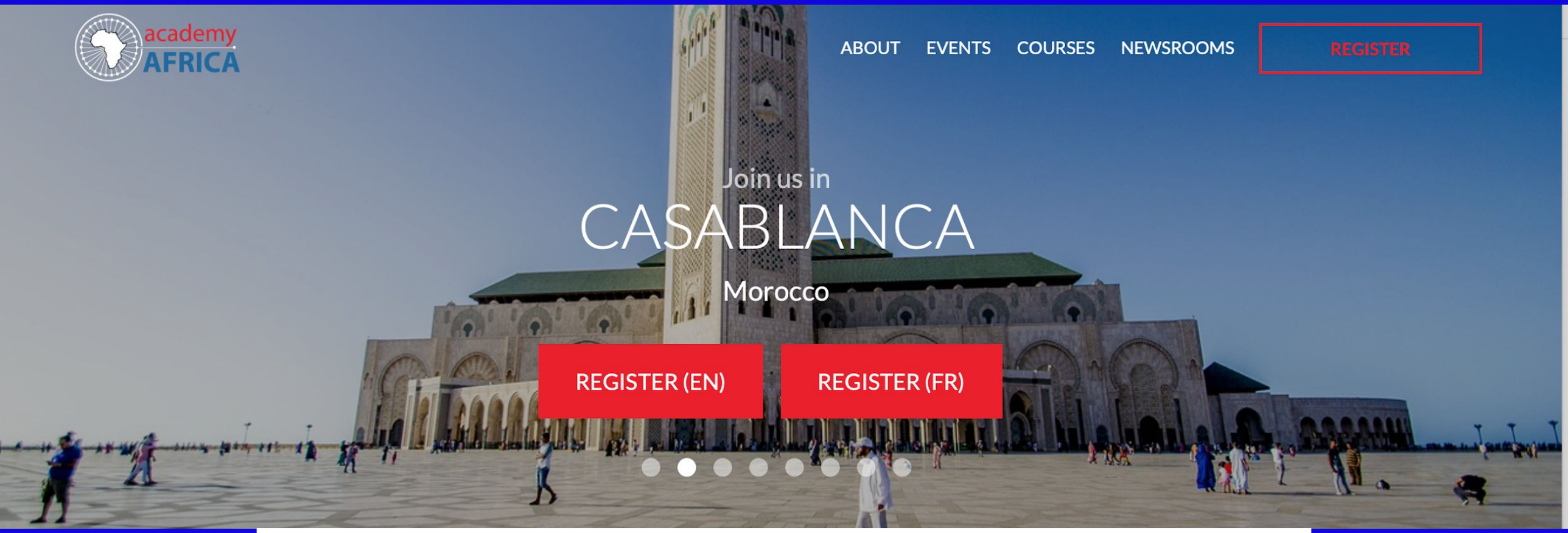


Ethiopia's hacktivism

CODE for AFRICA

iLab

Digital Forensics Investigators, investigating misinfo and disinfo



Improve your digital storytelling
with a combination of online webinars and face-to-face training in:

News Gathering

Storytelling

Engagement

Sustainability

CODE for AFRICA

Academy.Africa

Giving African newsrooms access to the world's best digital experts and storytelling technologies.

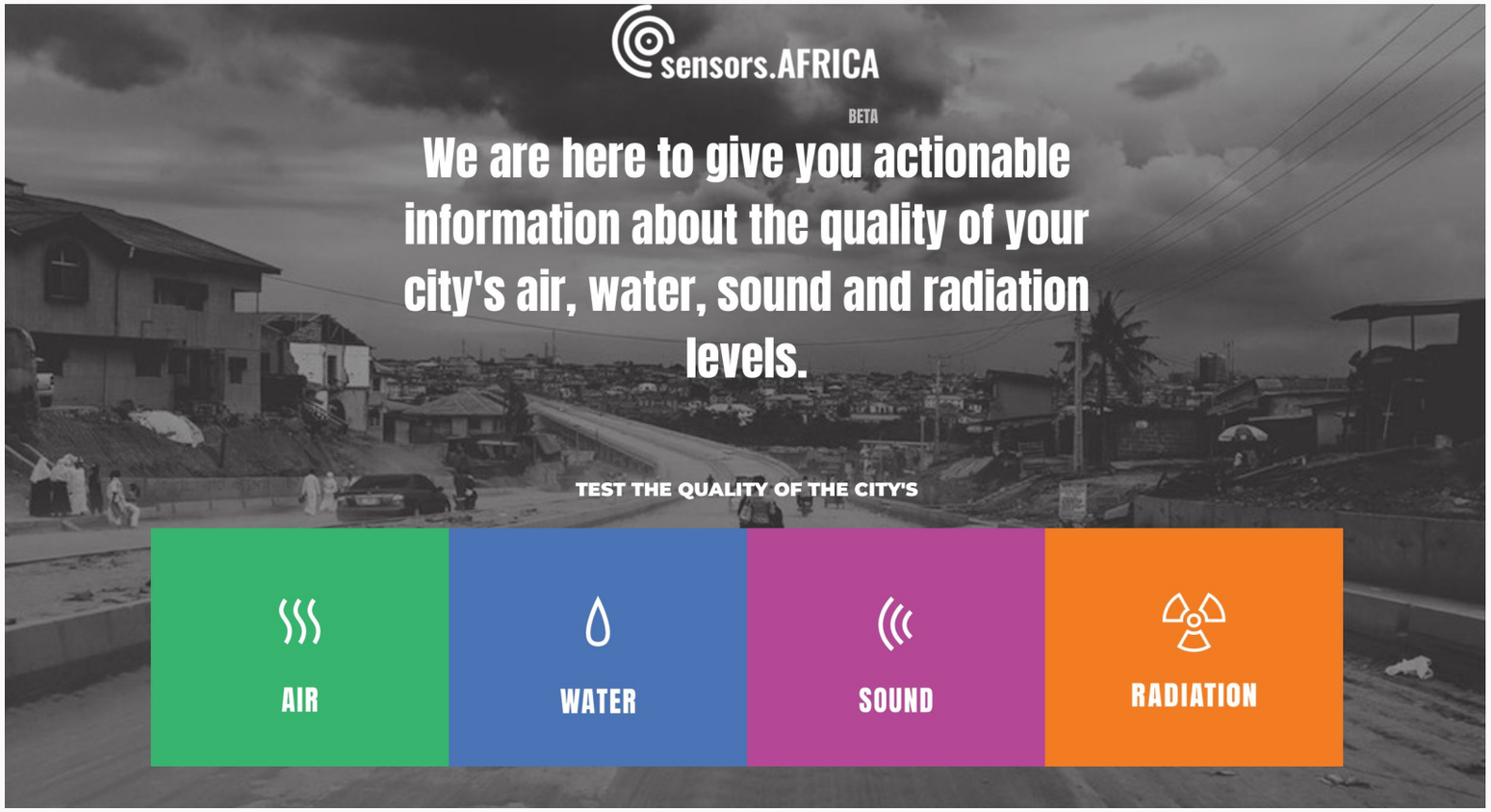
CODE for AFRICA

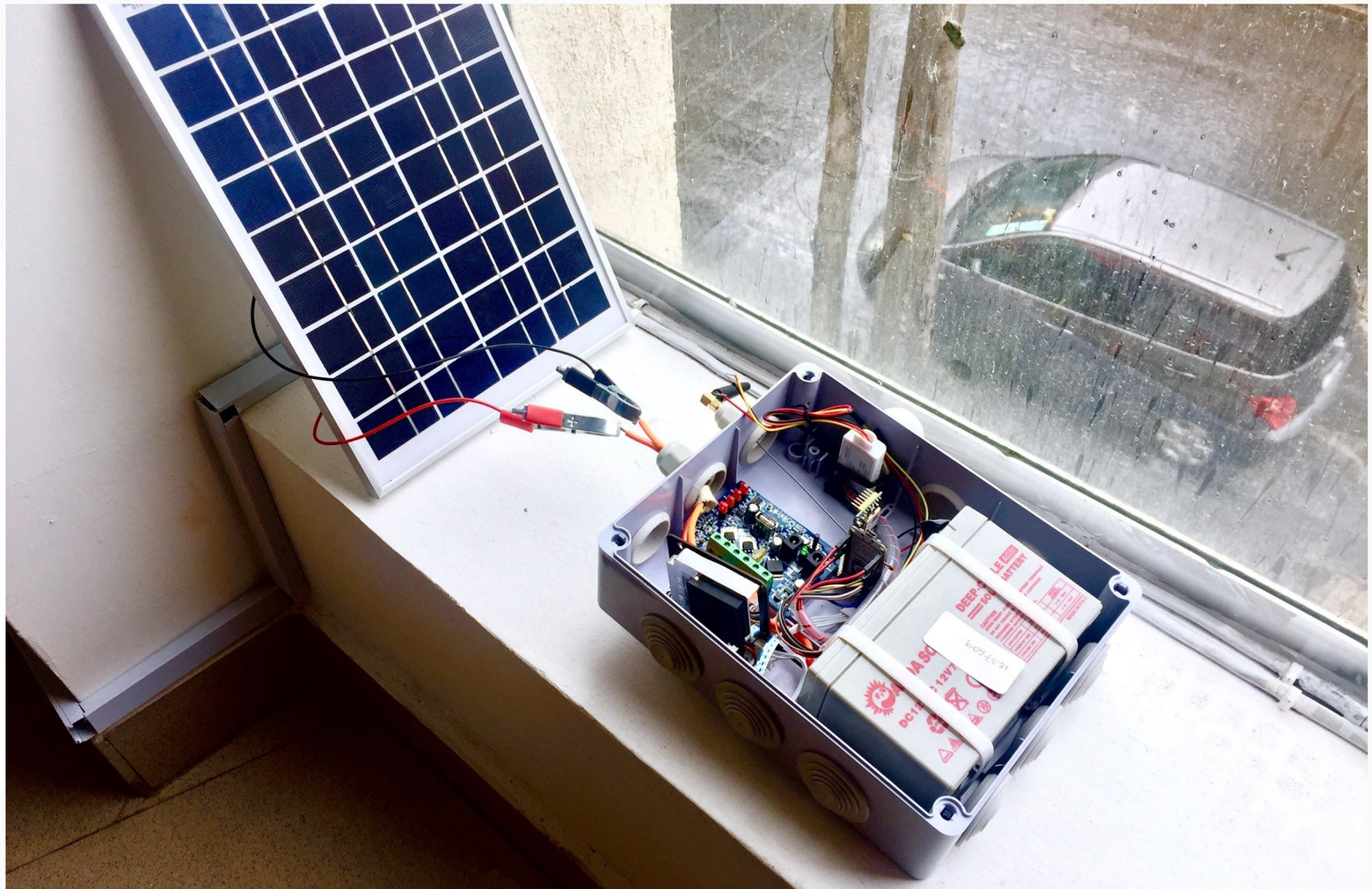
Wanadata

A Pan-African network of female data scientists, journalists and technologists working to change the digital media landscape by producing and promoting data-driven news.

Sensors. Africa

- We support deployment of revolutionary new digital sensors and advanced algorithms that provide citizens with real-time alerts while also producing analytical data.
- Our labs currently support sensors that focus on outbreaks of cholera or other waterborne diseases, as well as when air / sound pollution exceeds safe limits.
-





sensors.AFRICA BETA

Search for another location ...

THE AIR POLLUTION IN

NAIROBI, KENYA

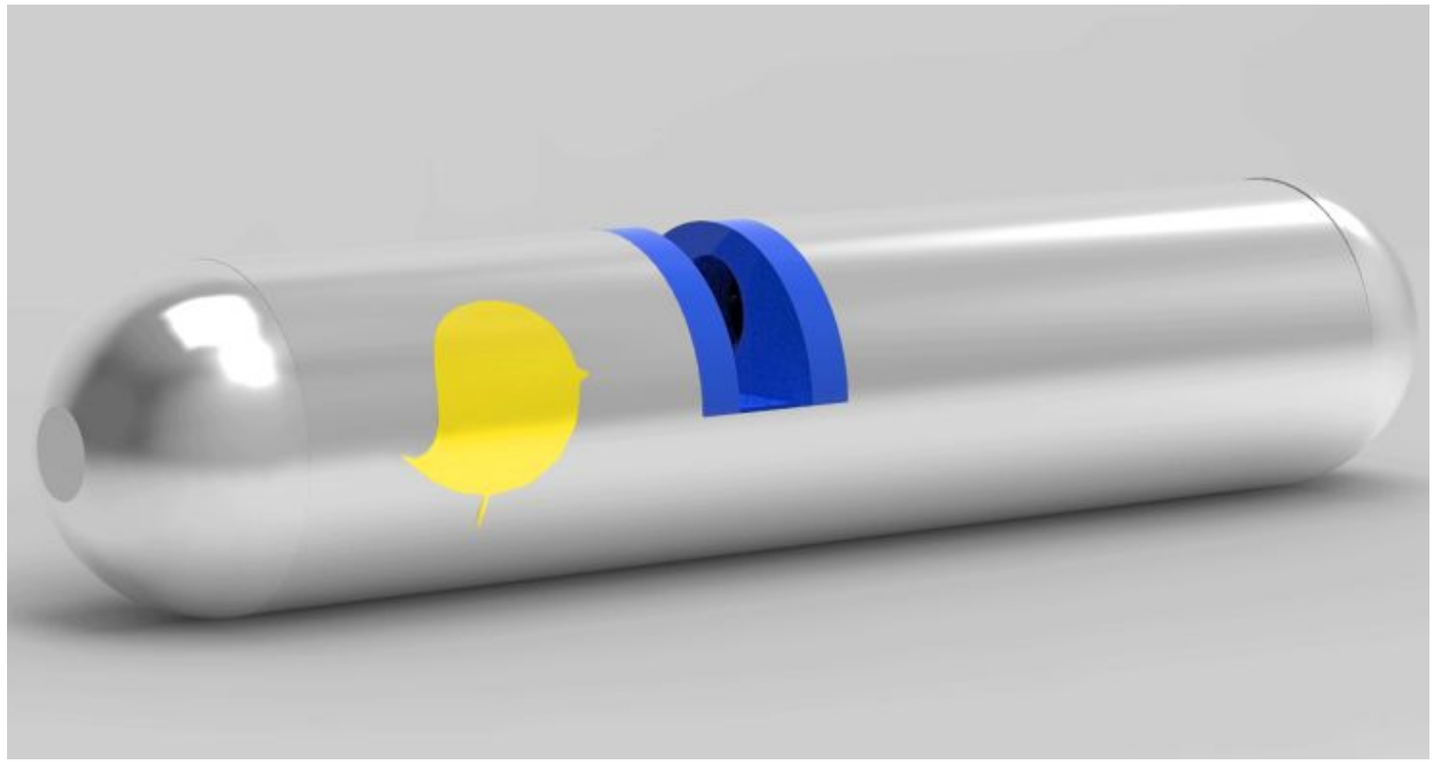
WHO Guideline (10) Lowest level at which premature mortality increases inresponse to long term exposure

53.3% OVER THE SAFE LEVEL

$PM_{2.5}$ ANNUAL EXPOSURE

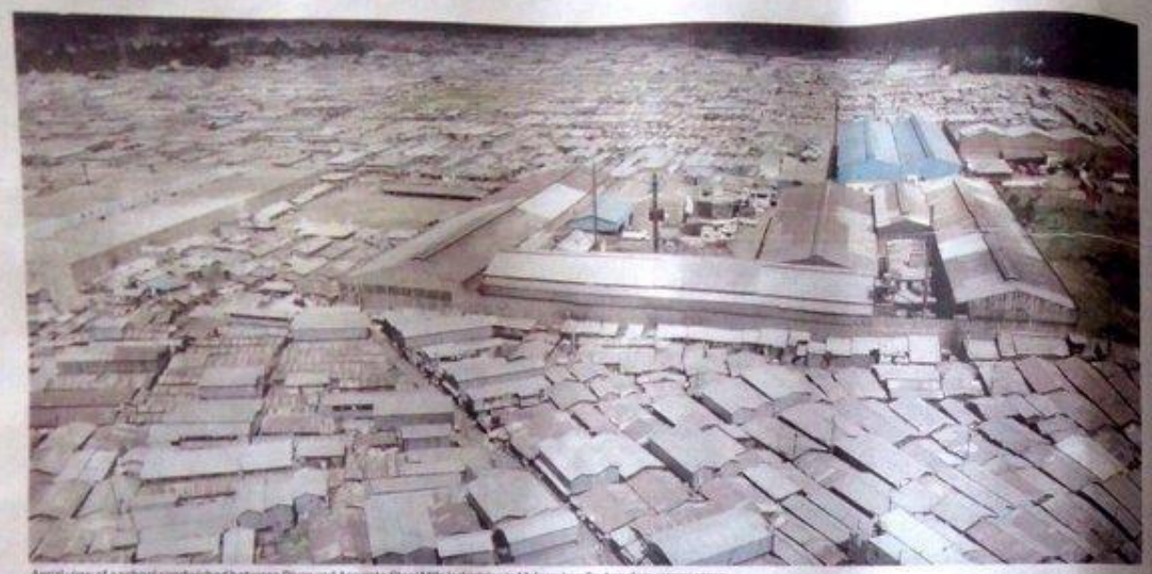
***$PM_{2.5}$ concentrations measured in micrograms of particles per cubic meter of air (µg/m ^{3})**

Data: WHO Global Platform on Air Quality & Health



OUTER
Shukdirect.com

BIG READ / DEADLY AIR



Aerial view of a school sandwiched between Divan and Accurate Steel Mills industries in Mukuru kwa Reuben slum /AFRICA DRONE

MUKURU FUMES PUT 60 ASTHMA PATIENTS A MONTH IN HOSPITAL

Residents are up in arms over pollution from nearby factories. Dozens suffer respiratory tract infections, including pupils whose learning ability is also impaired

PATRICK VIDIJA
@vidijapatrick

As we wait to be let into Maendeleo Learning Centre, smoke drifts over from the chimney of a factory next door. The smoke engulfs the school's bare fields and pollutes the classrooms, where the last lesson of the day is in progress.

Whether inside or outside class, the children and teachers have no way of escaping the smoke and the white dust particles that settle everywhere, causing a burning itch to the skin.

"What can we do? They need to finish their syllabuses before the school year ends," a teacher says.

Oblivious to the smoke and dust, some of the children play in the dusty playground. Others walk to the toilet blocks, which share a wall with the factory and bear the brunt of the fumes emitting from the factory.

The school in Mukuru kwa Reuben slum, off Enterprise Road, has 275 pupils, ranging from baby class to high school. It is nestled in between two factories: Bhachu Industries Limited and its subsidiary, Accurate Steel Mills.

Residents have time and again complained to the authorities about the noxious air coming from the factories.

HEALTH EFFECTS

Lucas Maina, who has lived in Kwa Reuben for 28 years, says he and other residents are worried about their health and that of their children. They have no option but to stay in the settlement.

"I have worked for Bhachu in the past. At the end of the day you have to put food on the table. If you complain about your welfare, the following day you can't step foot near the factory. So you just keep quiet," he says.

Mwende (not her real name) says she has lived in Kwa Reuben for eight years. She worries for her two children, and especially about her husband, who works for Bhachu.

"He struggles to breathe," she says, adding: "He suffers from a congested chest, and this has been getting worse over the years. Our hands are tied because that is where we get our daily bread."

Elijah Gachuki is the CEO at Mukuru Kwa Reuben Clinic. He sees up to 40 patients a day on average, all with respiratory tract infections and ailments. Gachuki attributes the poor health outcomes of the community to the large volumes of pollution from gases emitted by nearby industries.

Talking to the Star, he said, "Most of the patients we see have upper and lower respiratory tract infections. In some cases, they complain of severe chest pain. We are usually unable to deal with the more extreme of these cases, so many are referred to Mama Lucy Hospital, Mbagathi District Hospital and Kenyatta National Hospital."

Gachuki blames most of the respiratory tract infections on allergies caused by gas and dust emissions. "Currently we have about 60 asthmatic patients monthly at our TB clinic," he says.

He says the factory has yet to come up with proper waste disposal mechanisms to stop the dust and gas emissions from continuing to endanger the lives of the community, and particularly children.

"For us to guarantee these youngones a brighter future, we need to seriously look at how to mitigate this air pollution," Gachuki says.

An article in the Guardian newspaper in August 2018 highlights the effects of air pollution on people's intelligence. The article, based on research conducted in China, found that high pollution levels led to significant drops in test scores in language and arithmetic, with the average impact being having lost a year of the person's education.

Other reported studies have linked toxic air to extremely high mortality in people with mental disorders, while another analysis found that people living near busy roads had an increased risk of dementia.

Apart from studies that have shown air pollution to cause premature deaths globally, scientists have found the first evidence that particles of air pollution travel through the lungs of pregnant women's lungs and lodge in their placentas. This in a study conducted in London, UK, involving mothers living in the city.

HIGH POLLUTION LEVELS

Following the complaints, the Star, in partnership with Code for Africa, set out to set up air quality sensors in the Kwa Reuben village to measure the quality of the air residents were being exposed to.

The residents are also able to see the readings from the sensors to advocate measures to improve the air quality. The sensors, AFRICA project was set up in Mukuru Kwa Reuben at Reuben FM, 330 meters from Accurate Steel Mills, a subsidiary of Bhachu Industries Limited.

The readings from 330m away were high, and we were there to see what the sensors would tell us about pollution closer to the factories.

The data collected by the air quality sensors confirmed the residents claims that the factories regularly release emissions between 2pm and 6pm. Using the World Health Organisation's Air Quality guidelines, the data showed that over a seven-day period with data collected over 24hrs, residents living around the sensor at Reuben FM were seeing Particulate Matter (PM) 10 values higher than the WHO recommended levels over a 24-hour period, four days of the week.

The values were so high, despite being over a quarter of a kilometre away from the factory. The Code for Africa team went on walkabout to take readings with a portable sensor closer to the factory.

Our first reading at Maendeleo Learning Centre at 2.59pm was 266 PM/m3 for PM 10, well above WHO set

A water tank at Maendeleo Learning Centre caked in emissions /PATRICK VIDIJA

"HE SUFFERS FROM A CONGESTED CHEST, AND IT'S BEEN GETTING WORSE. OUR HANDS ARE TIED BECAUSE THAT IS WHERE WE GET OUR DAILY BREAD – FACTORY WORKER'S WIFE

quality standards. The factory with the chimney emitting to the right of the school was identified as Divani, but that could not be substantiated. Its chimney is visibly lower than the prescribed Nema guidelines, which is 40-50m high from the tallest building in the neighbourhood.

NEMA'S RESPONSE

Of the two factories highlighted as major pollutants in the Ruaraka neighbourhood of Kwa Reuben, Accurate Steel Mills has been positively identified.

The factory, which has been in operation since 1997, coexisted with the residents until mid-2016. Speaking to the Star, Karen* (who did not want her real name used) said the factory did not have the levels of pollution it emits today.

"They were okay. The chimneys took the air up high into the air. But now the smoke comes down through gaps in the factory's wall, between corrugated sheets and the stone wall," she said.

Karen showed us into her home, which is directly in the shadow of Accurate Steel. "The smoke is very heavy at certain times, and is accompanied with a white powder that settles on all surfaces and seems corrosive to metal. The factory has chimneys but the emissions are seen to seep through the corrugated iron top sheets of the factory's wall," she said.

Steel production and treatment processes have been shown to have significant impact on the natural environment. The major releases of pollutants to air and water include carbon dioxide and nitrogen oxides and sulphur dioxide.

Dust is formed in most of the steel industry's processes. The particles from the nitrogen and sulphur oxides are smaller than 2.5 micrograms. They are easily inhaled into the lungs and absorbed directly into the bloodstream.

Nema environmental chemist Evans Nangulu said following latest assessments of the Bhachu factory, they had directed the company to raise its chimneys from 20m to at least 50m to increase the dispersion rate of the waste gases.

Additional recommendations include installing fabric filters to reduce emission of fine dust particles, using electrostatic precipitators that can tremendously minimise the emissions of sulphur and nitrogen oxides and carbon dioxide.

On how these regulations are being enforced, Nangulu said: "We have so many papers on policies and regulations in place, but enforcement and enforcement remains a nightmare. When you go to the ground, you realise very little is being done."

Adding: "Enforcing these regulations is not a one-off idea. It should be continuous, and if those in charge can tighten their ends to ensure both developers and factories follow the law, we can reduce the unfortunate situation that the people in Kwa Reuben find themselves in."

Nangulu urged factories to adopt modern technologies to help them manage their emissions.

STEEL MILL ON THE SPOT

We emit no smoke and have Nema approval — factory director

Bhachu Industries boss says gas is trapped by convertors they installed

BY PATRICK VIDIJA @vidijapatrick/ Mukuru kwa Reuben slum residents have long complained of chest pains and asthma. They blame it on gas and dust emissions from a subsidiary of Bhachu Industries Limited: Accurate Steel Mills.

However, the management of Bhachu denied the allegations.

Company director Gurveer Bhachu said: "I can confirm that we have all our licences, which are in accordance with international standards."

Adding: "Both Nema and City Hall are aware of our existence, what we produce and the gases we emit. This is why we furnish them with environment monitoring reports that have been approved all through."

Bhachu said they have installed catalytic converters that trap and regenerate heat back into the furnace. These converters, he said, have made it impossible for the company to lose gases through emissions.

"We have been here. We have over 1,000 permanent employees from the Reuben slum, and none of them has complained about anything," he said.

Throughout the interview, Bhachu denied all claims by residents about the emissions, saying he visits the plant every day from 2pm and 5pm and neither he nor his managers have seen or heard of such smoke.

This, however, contradicted our assessment, and multiple videos and images showing the heavy, choking smoke that escapes through the factory's walls, instead of through the two existing chimneys, forcing residents to vacate the area for several hours.

"I AM A MULTI-BILLION INVESTOR WITH ABOUT FIVE BANKS LENDING ME LOANS... I CANNOT LET SUCH SMALL ISSUES AFFECT SUCH AN INVESTMENT. I HAVE EMPLOYED THESE PEOPLE. I RUN A SCHOOL IN THEIR COMMUNITY. THIS IS HOW THEY WANT TO REPAY ME?

Bhachu was agitated as he said, "I am a multi-billion investor with about five banks lending me loans to run these businesses. With the trailer assembly, steel milling and manufacturing of gas cylinders, I cannot let such small issues affect such an investment. Otherwise, even Nema who is always tough on us would not have issued us the certificates."

He showed copies from the authority, certifying that Bhachu had met all environmental standards. However, upon asking for the copy from Accurate Steel Mill, Bhachu said he would only produce the certificate when we had official letters indicating why we needed to see it.

Bhachu demanded that we disclose who had fed us with the information. "I have employed these people. I run a school in their community and do many things for them. This is how they want to repay me?" he said.

So we wound up with two sides of the story: residents living with the effects of pollution that will affect them for years to come, and on the other hand, the company that denies all claims of polluting the environment.

Science, through the data collected by the air sensors, shows which side is true. There are heavy pollutants in the air higher than the mandated Nema regulations for Particulate Matter.

Where is Nema in all this? Where is the local government? Where is the county government?

The reality is that the long-term effects of the air pollution that residents of Mukuru kwa Reuben are living under will feed into the greater cycle of poverty.

As people are unable to move due to the lack of affordable housing, they will be stuck with chronic respiratory diseases. Who speaks for the residents of Mukuru kwa Reuben?

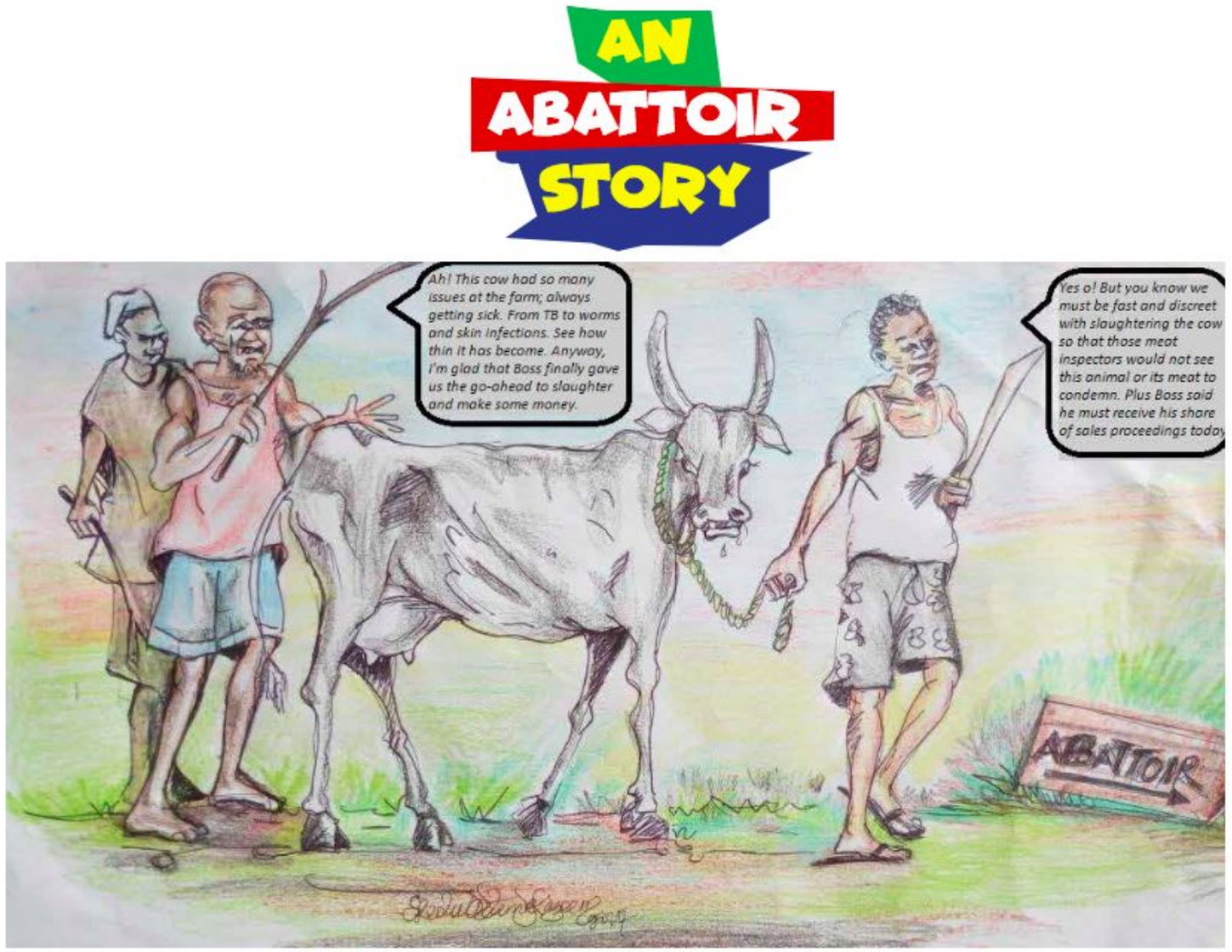
Additional reporting by Naima Mungai with support of Code for Africa's sensors.Africa project and africanDrone.

Medicine testing

- Fake or expired or otherwise unsafe medicines endanger 10,000s of the poorest across Africa.
- Chokers systematically tests medicines from pharmacies across Kenya, prompting the government recall of a widely used malaria medicine.
- The project is now being replicated in Tanzania and South Africa.

Dodgy meat

- Informal abattoirs supply meat to millions of Africans: but is it safe?
- Our pilot project in Lagos collected 5 to 7 meat samples daily, with lab tests confirming widespread contamination with bovine tuberculosis (TB) and up to 25% infected with worms.
- The project sparked health inspections / raids in Lagos.
- We're now replicating the project in Kenya & South Africa.



Steal Our Stuff

Fast-track your project by tapping into our people + tools.

CODE for AFRICA

Home About Projects Organisations + Add Project

africanCOMMONS

Showcasing re-useable tools built across Africa and the people & organisations building them.

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- Organisations
- People

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