

**AN OVERVIEW ON CHANGING LANDSCAPES**  
the use of satellite images to raise awareness  
about the effects of urbanization

**Federico Monica**  
PhD, founder of Placemarks-Africa



# PlaceMarks — a look at a changing Africa



**PLACE  
MARKS**

[www.placemarks-africa.org](http://www.placemarks-africa.org)

Placemarks works on the analysis of satellite imagery to assess the changes that are taking place in landscape, natural environment and ecosystems across Africa.

# Satellite imagery

opportunities for researchers and experts

## SECTORS

Urbanization

Environment

Agriculture

Mining

Infrastructures

## ACTIVITIES

Planning

Research

Monitoring/Evaluation

Communication

AI development

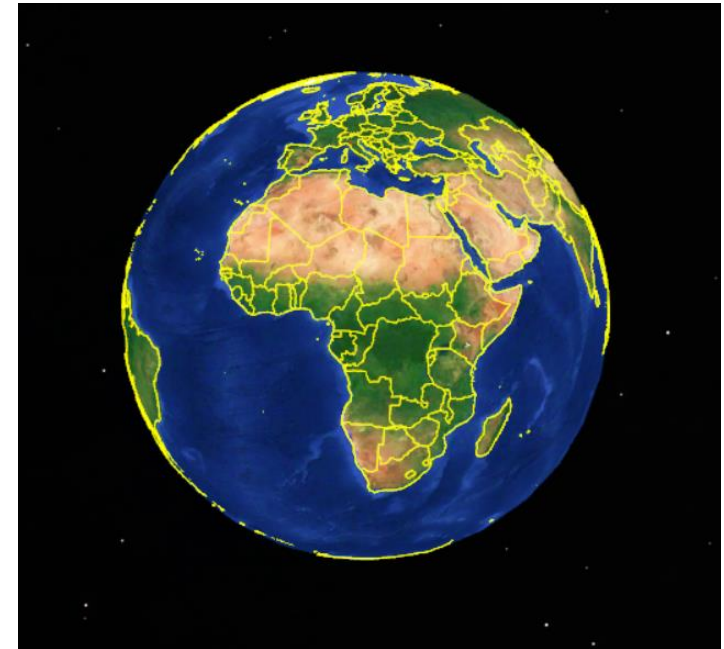
# Satellite imagery

opportunities for everyone

Free and accessible tools

Good resolution and coverage

Opportunities of simple elaborations



# A tour of hidden impacts of urbanization and construction sector

Cement production

Quarrying

Sand mining/dredging

Informal quarrying/sand mining



# Cement production

Tieo (Senegal) 2020



Google Earth

# Cement production

Tieo (Senegal) 2020

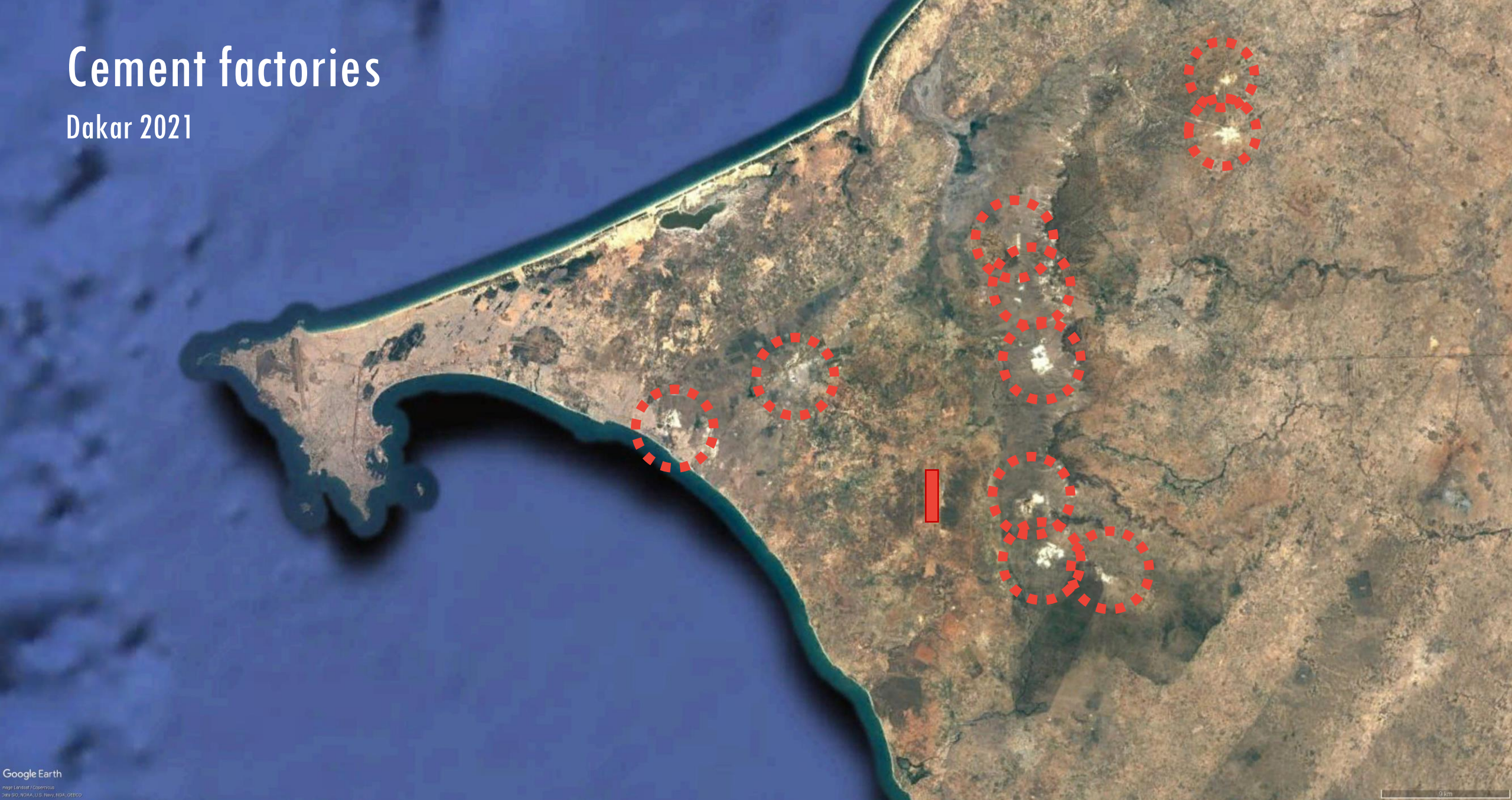






# Cement factories

Dakar 2021



Google Earth

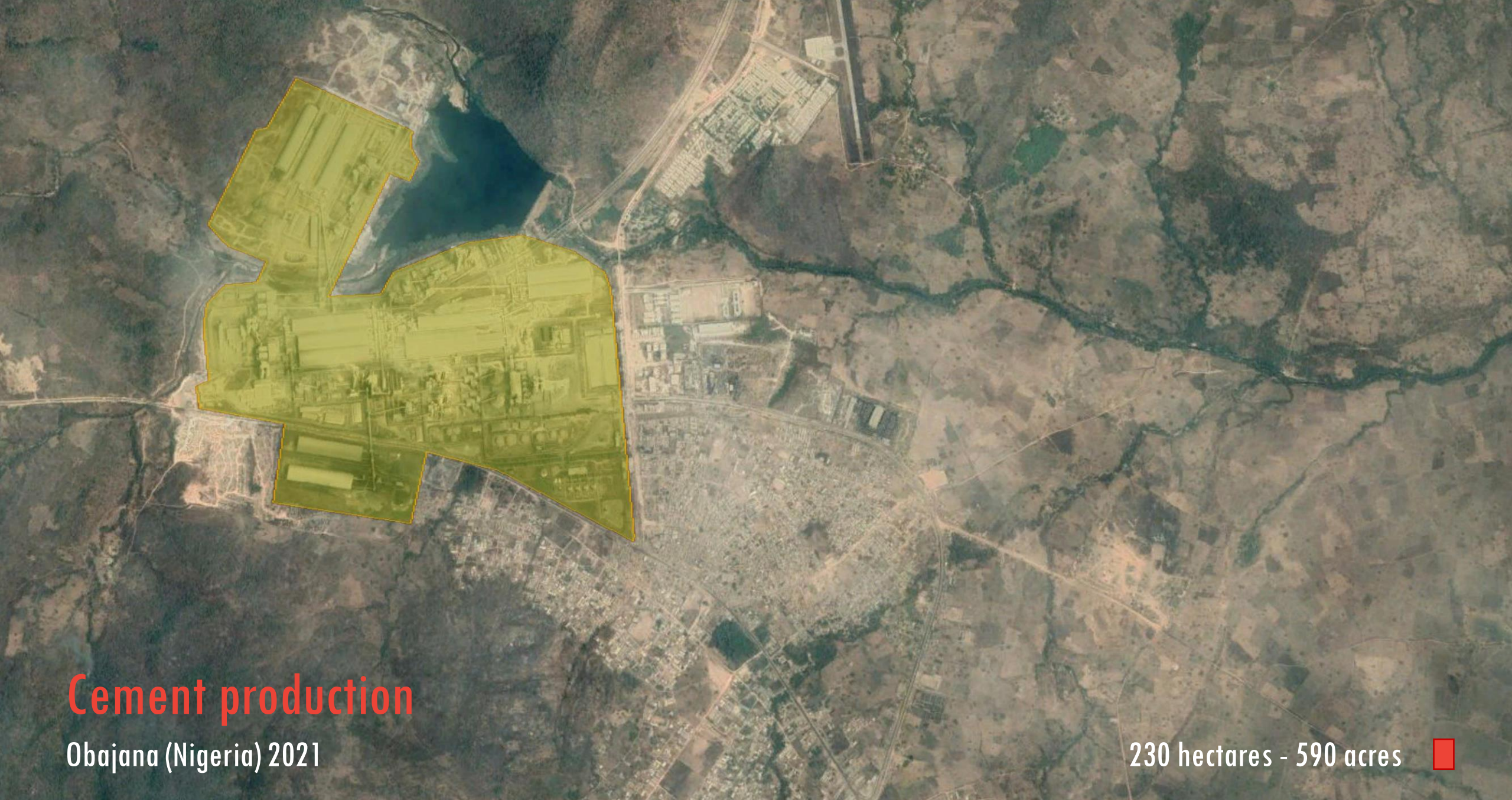
Image Landsat / Copernicus  
Data: NOAA, US Navy, NGA, GEBCO

9 km



# Cement production

Obajana (Nigeria) 2021



# Cement production

Obajana (Nigeria) 2021

230 hectares - 590 acres



A satellite map of Obajana, Nigeria, in 2021. The map shows a rugged, hilly landscape with a network of roads and a river. A large industrial complex, identified as a cement production facility, is highlighted in yellow in the lower-central part of the image. The complex includes several large rectangular structures and a central area that appears to be a reservoir or a large pond. The surrounding terrain is a mix of green vegetation and brownish soil, with a prominent road running north-south through the center of the map.

# Cement production

Obajana (Nigeria) 2021



# Cement production

Obajana (Nigeria) 2021



# Cement production

Obajana (Nigeria) 2021

Google Earth



Google Earth

# Cement production

Obajana (Nigeria) 2021



# Quarrying

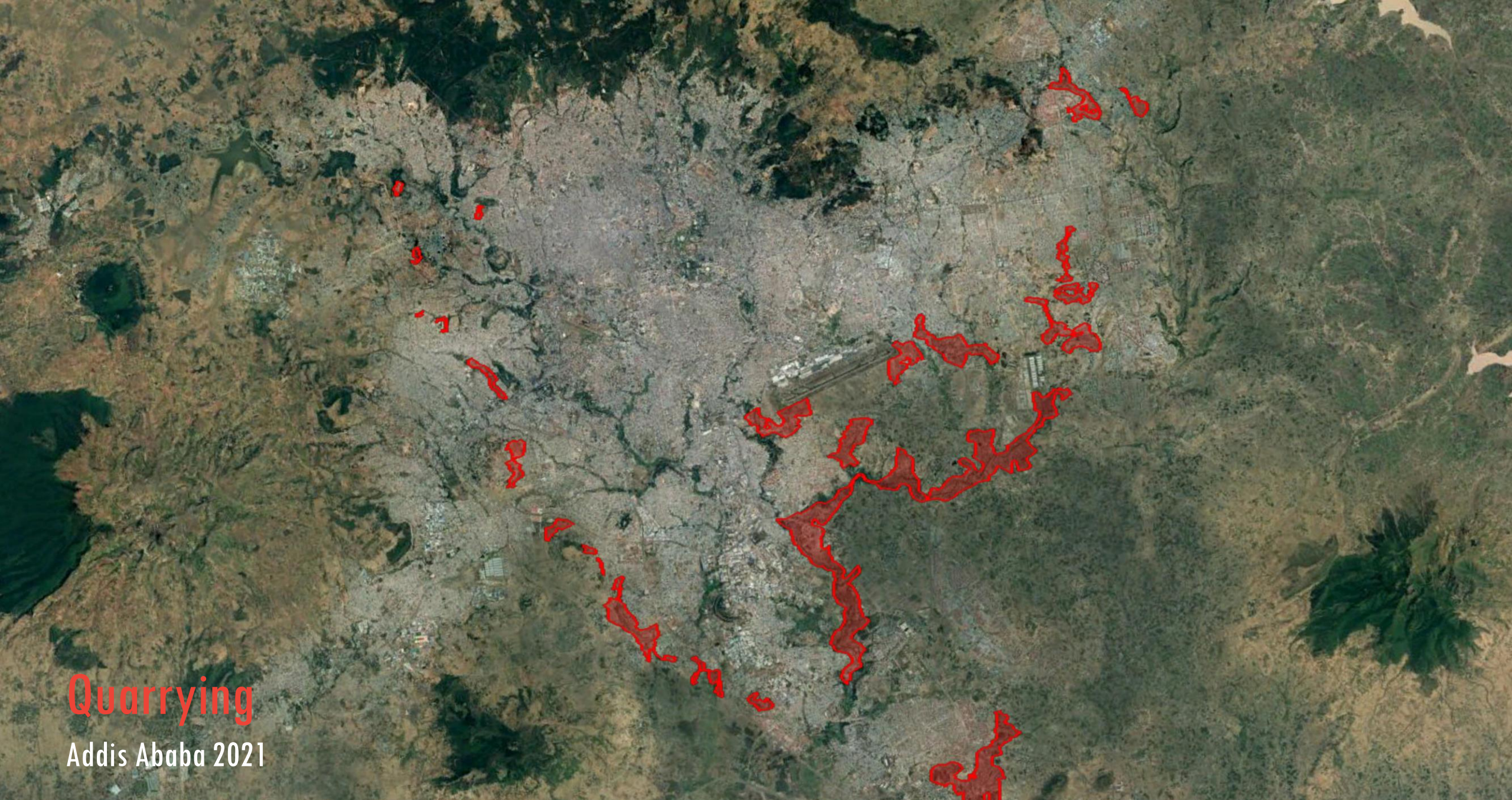
Addis Ababa 2021





# Quarrying

Addis Ababa 2021



# Quarrying

Addis Ababa 2021

# Effects of informal quarrying

Accra 2021



# Dredging

Abidjan



# Dredging

Abidjan 2015



# Dredging

Abidjan 2021



# Dredging

Abidjan 2021



250 hectares - 600 acres

# Sand mining

Sierra Leone





# Sand mining

Sierra Leone - 2015



# Sand mining

Sierra Leone - 2019



# Sand mining

Sierra Leone - 2021



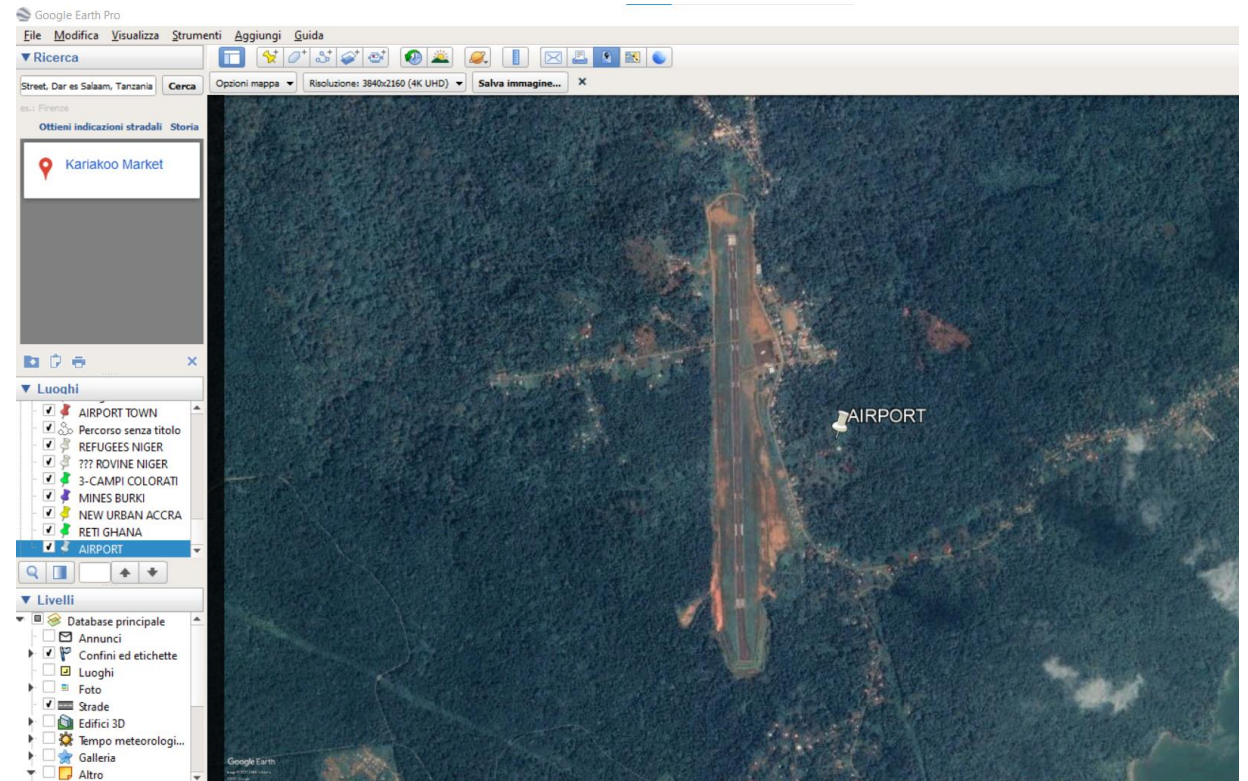
# Sand mining

Sierra Leone - 2021



# Free and open research tools

- Google Earth
- Bing Maps
- Zoom earth
- Earth explorer



# Training for self assessment

Training of local communities to self-assess and monitor their area or neighborhood

Training in schools and universities to educate to recognize issues or dangers and develop active citizenship

## TRAINING MODULE

SATELLITE IMAGES SELF ASSESSMENT



How to identify quarrying areas?

- different ground color
- widespread roadpaths
- presence of trucks/vehicles
- no vegetation





# Effects of informal mining

Gaitu, Meru county 2015



# Effects of informal mining

Gaitu, Meru county 2020



Thanks for your attention



**PLACE  
MARKS**

[www.placemarks-africa.org](http://www.placemarks-africa.org)  
[info@placemarks-africa.org](mailto:info@placemarks-africa.org)

