Climate Justice for a Fair and Just Transition

A Multicriteria Analysis of the Democratic Republic of the Congo

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Context setting

2nd largest and the 2nd most populated country in Africa

One of the 17 megadiverse countries in the world

A kleptocratic political system

Economy based on the export of raw materials

A social condition that clashes with the richness of the country's subsoil

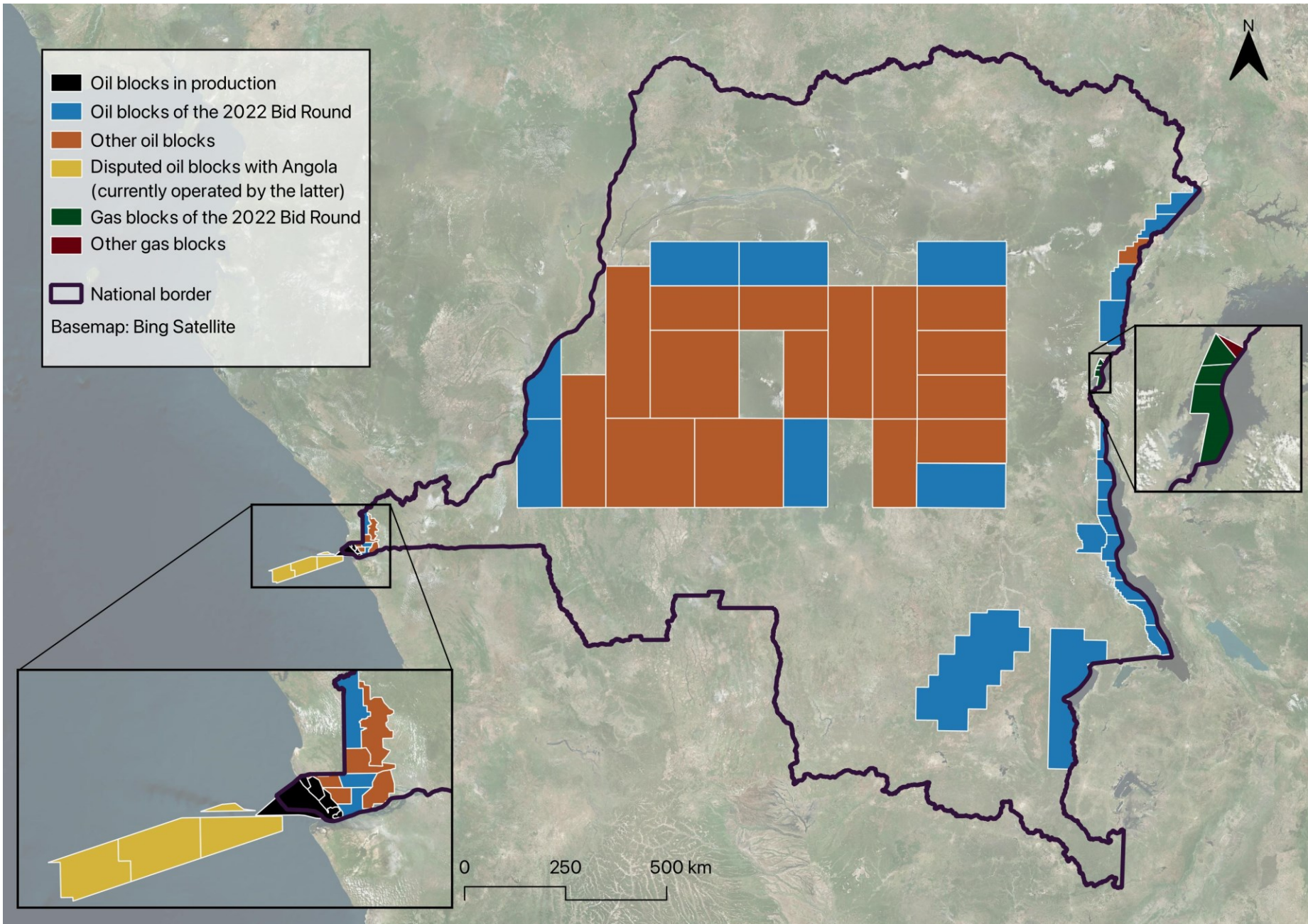(Data source: World Food Programme)

Identifying unburnable carbon areas

Unburnable carbon areas

- Fossil fuel reserves to remain untouched in order not to exceed certain carbon budget thresholds and achieve climate targets;

- Welsby et al. (2021) integrated a geographical dimension to the concept, defining areas of unburnable fossil fuels on a continental scale;

- At the African level, 51% of oil reserves and 49% of gas reserves should remain unburned to to keep the average temperature below 1.5 C^o compared to pre-industrial levels by 2050;

Spatial multicriteria decision analysis (SMCDA)

- Definition of three indices on which to base the analysis:

    - Environmental index;

    - Economic index;

    - Social index;

- TOPSIS methodology;

Legend

- Oil blocks in production
- Oil blocks of the 2022 Bid Round
- Other oil blocks
- Disputed oil blocks with Angola (currently operated by the latter)
- Gas blocks of the 2022 Bid Round
- Other gas blocks
- National border

Basemap: Bing Satellite

0   250   500 km

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG)

Case study

The development of the oil and gas industry in the Democratic Republic of Congo (DRC)

In 2022, the DRC Ministry of Hydrocarbons launched a bid round for the concession of 30 blocks (27 oil, 3 natural gas) in the country
> Economic development and diversification
> Respond to the internal energetic needs

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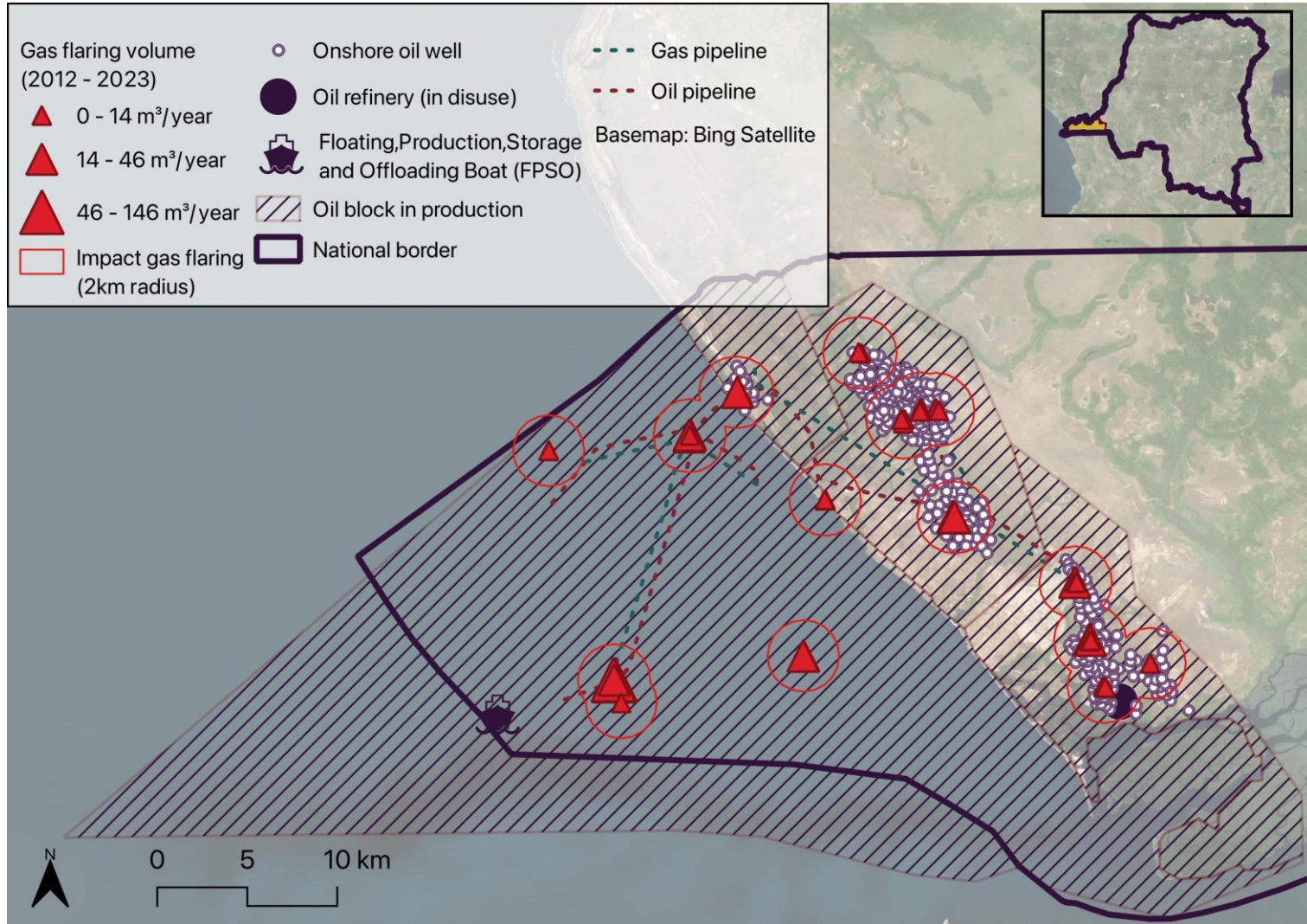
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, World Bank, ENI, U.S. Department of Energy, ShipXplorer)

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> Respond to the internal energetic needs

Environmental risks

- DRC holds the second largest tropical forest in the world;

- Presence of the world's largest tropical peatland;

- Ranges of several critically endangered species coinciding with the areas affected by the initiative;

Social risks

- Serious human rights violations in other key industries in the country (land grabbing and forced evictions, forced labour, child labour…);

- Presence of indigenous communities in the areas affected by the initiative;

Political risks

- A kleptocratic political system unable to redistribute profits to the population and effectively exercise its rule over the entire territory;

- A long history of corruption in the awarding of oil exploration concessions;

Global environmental risk

- Non-compliance with the efforts required by the international community to mitigate the effects of the climate crisis through a progressive decarbonisation of society;

Definition of the analysis indices
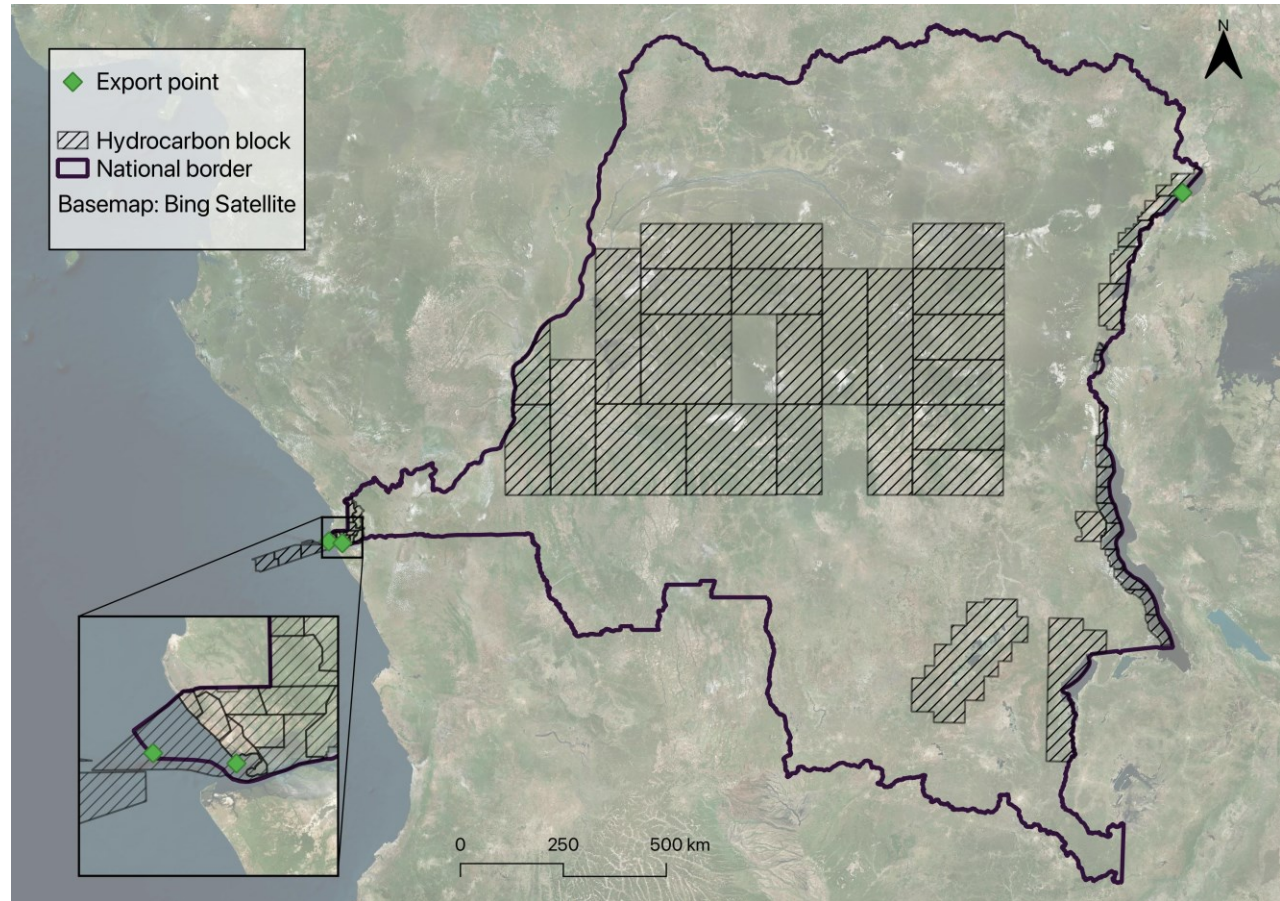
Economic index

- Transport network
  (benefit)
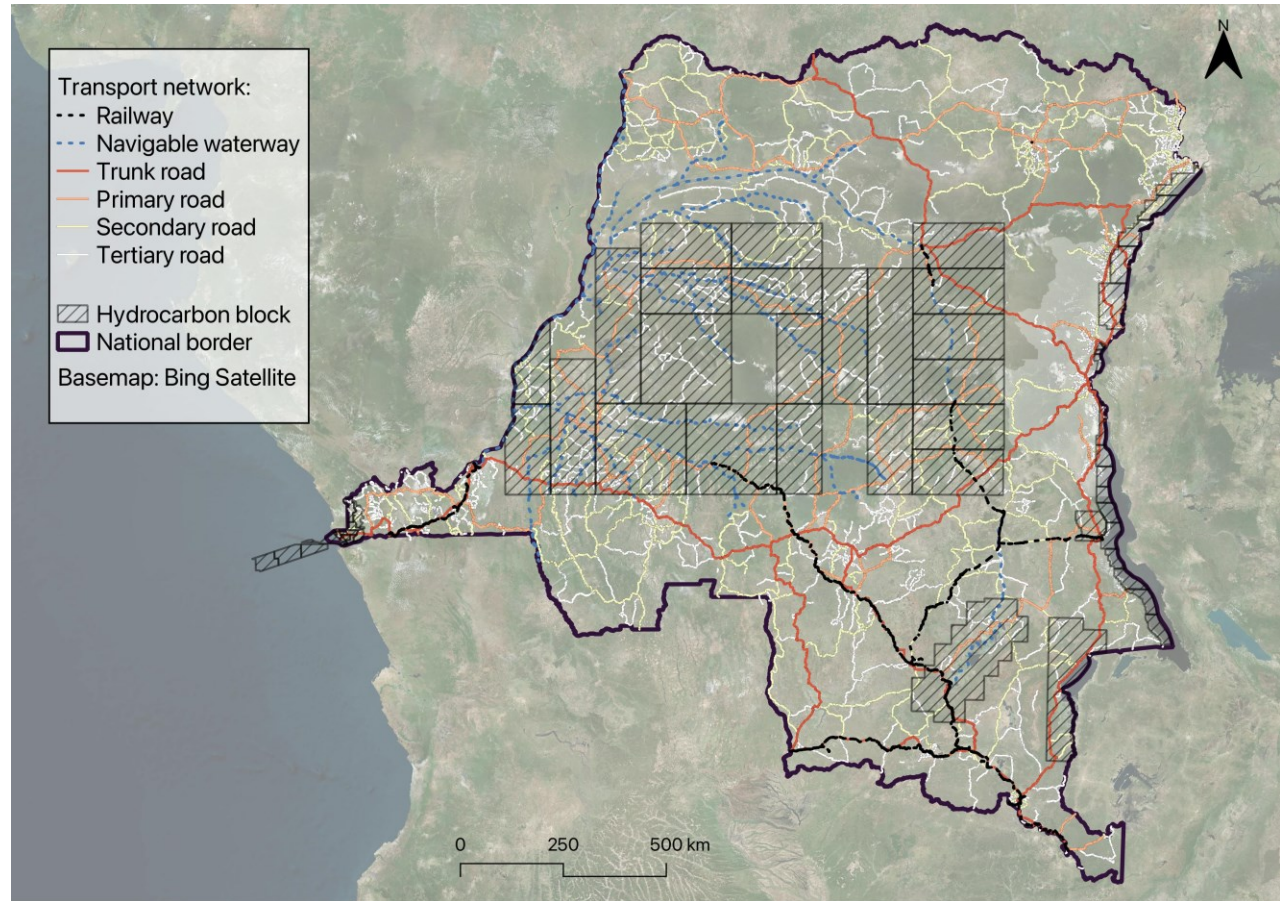
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, Référenciel Geographique Commun della RDC)

Definition of the analysis indices

Economic index

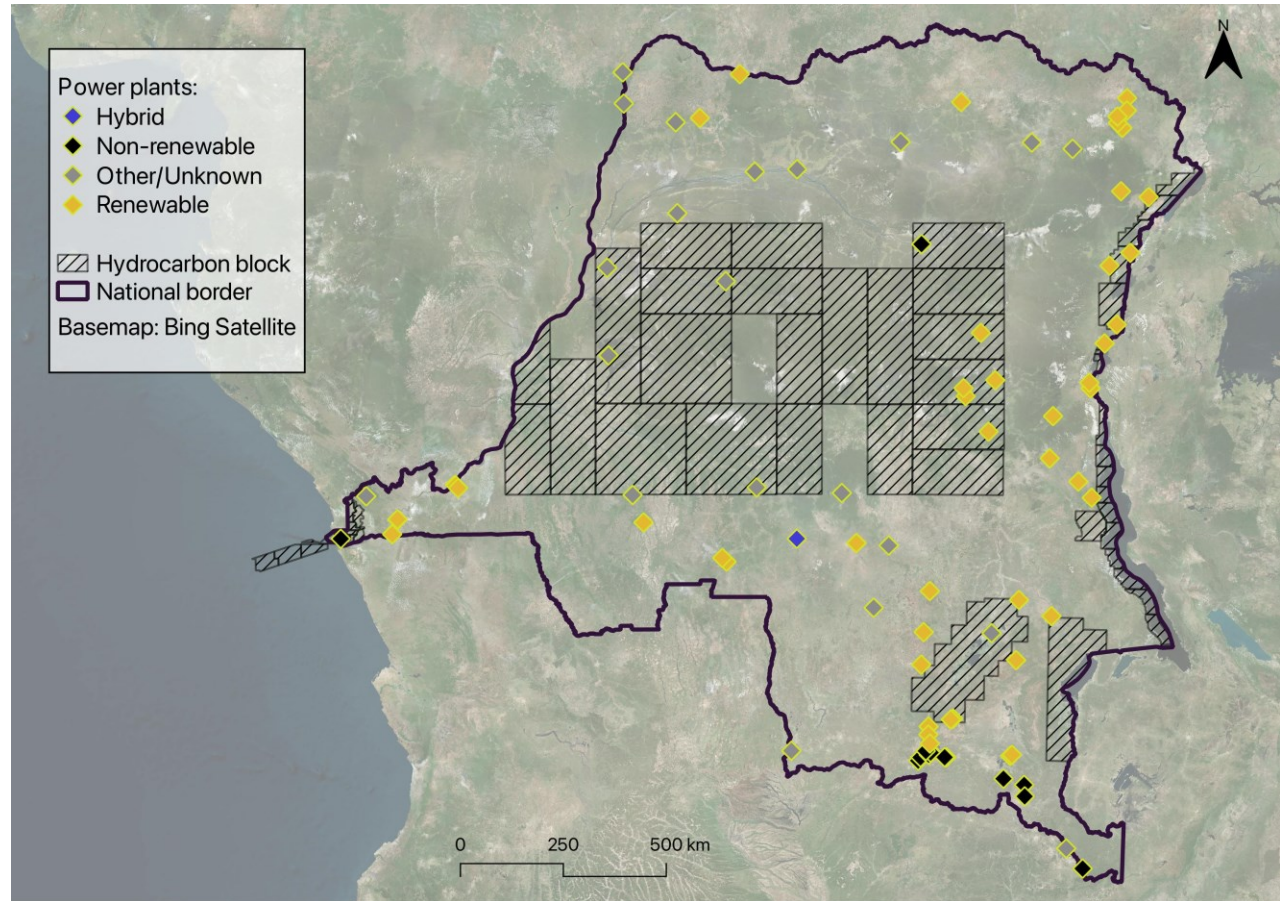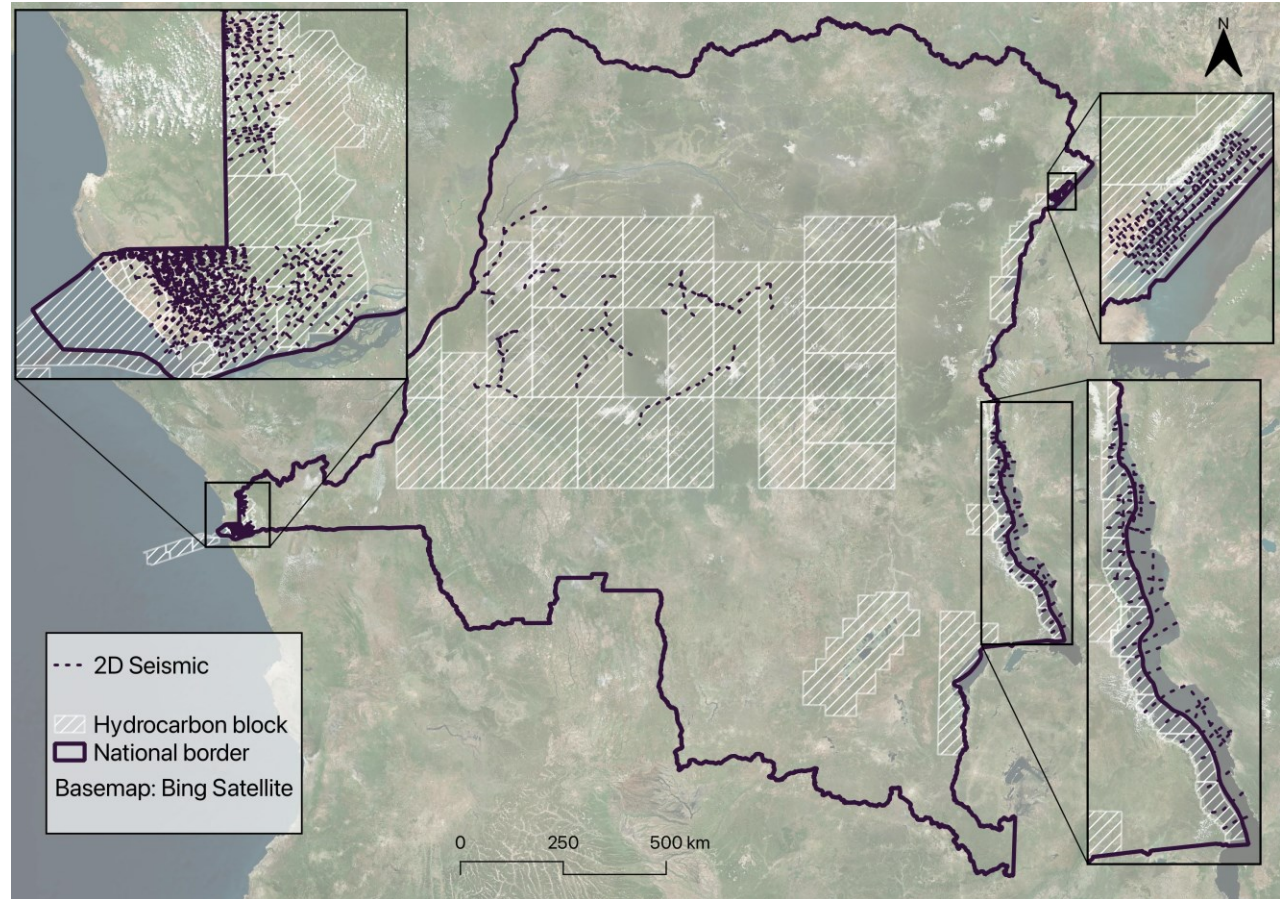- Transport network (benefit)

- Distance to export points (cost)

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, ShipXplorer)

Definition of the analysis indices

Economic index

- Transport network
  (benefit)

- Distance to export points
  (cost)

- Distance from power plants
  (cost)

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, U.S. Department of Energy)

Definition of the analysis indices

Economic index

- Transport network
  (benefit)

- Distance to export points
  (cost)

- Distance from power plants
  (cost)

- **2D seismic**
  (benefit)

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG)

Definition of the analysis indices

Economic index

- Transport
  network
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- Distance to export
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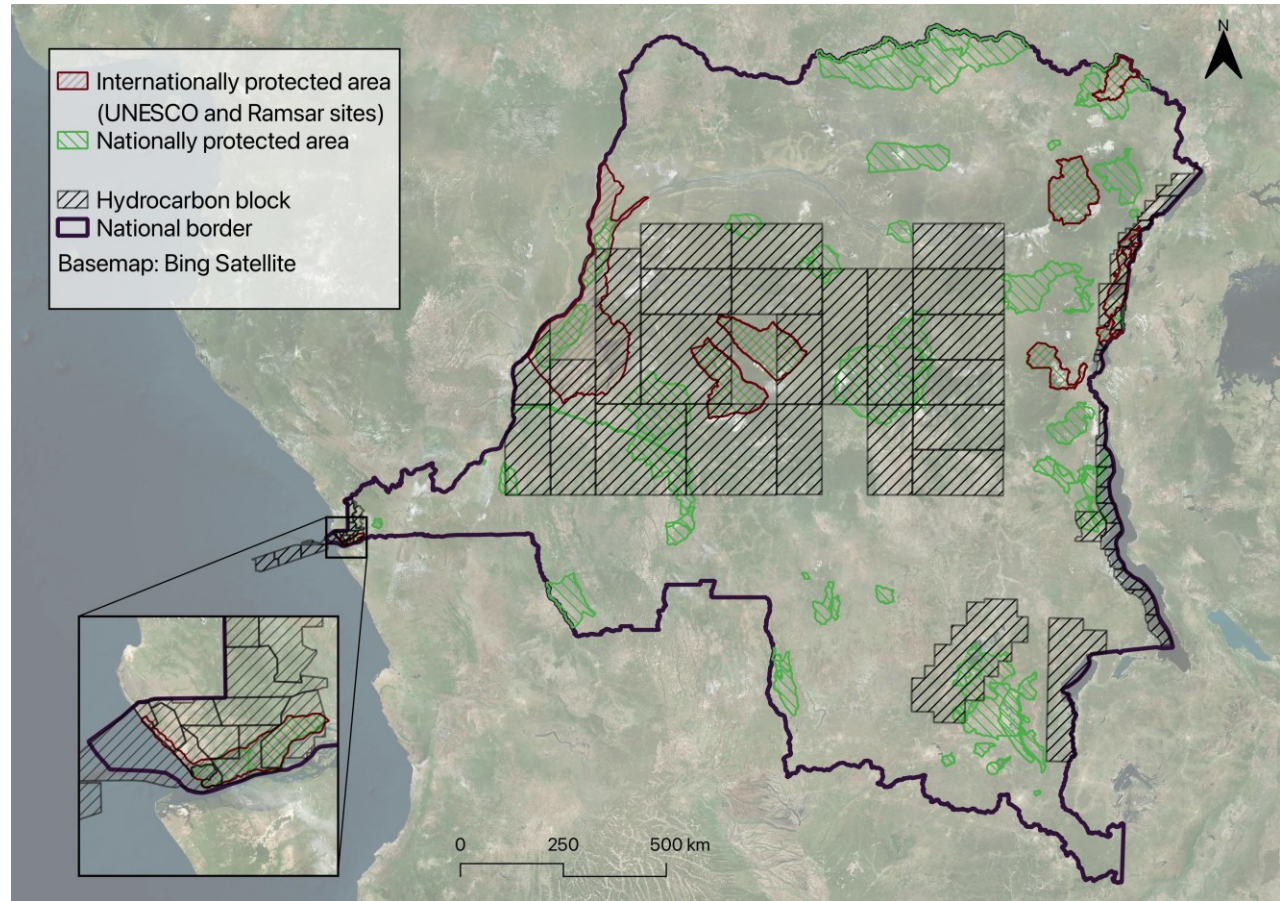- 2D seismic
  (benefit)

- Violence rate
  (cost)
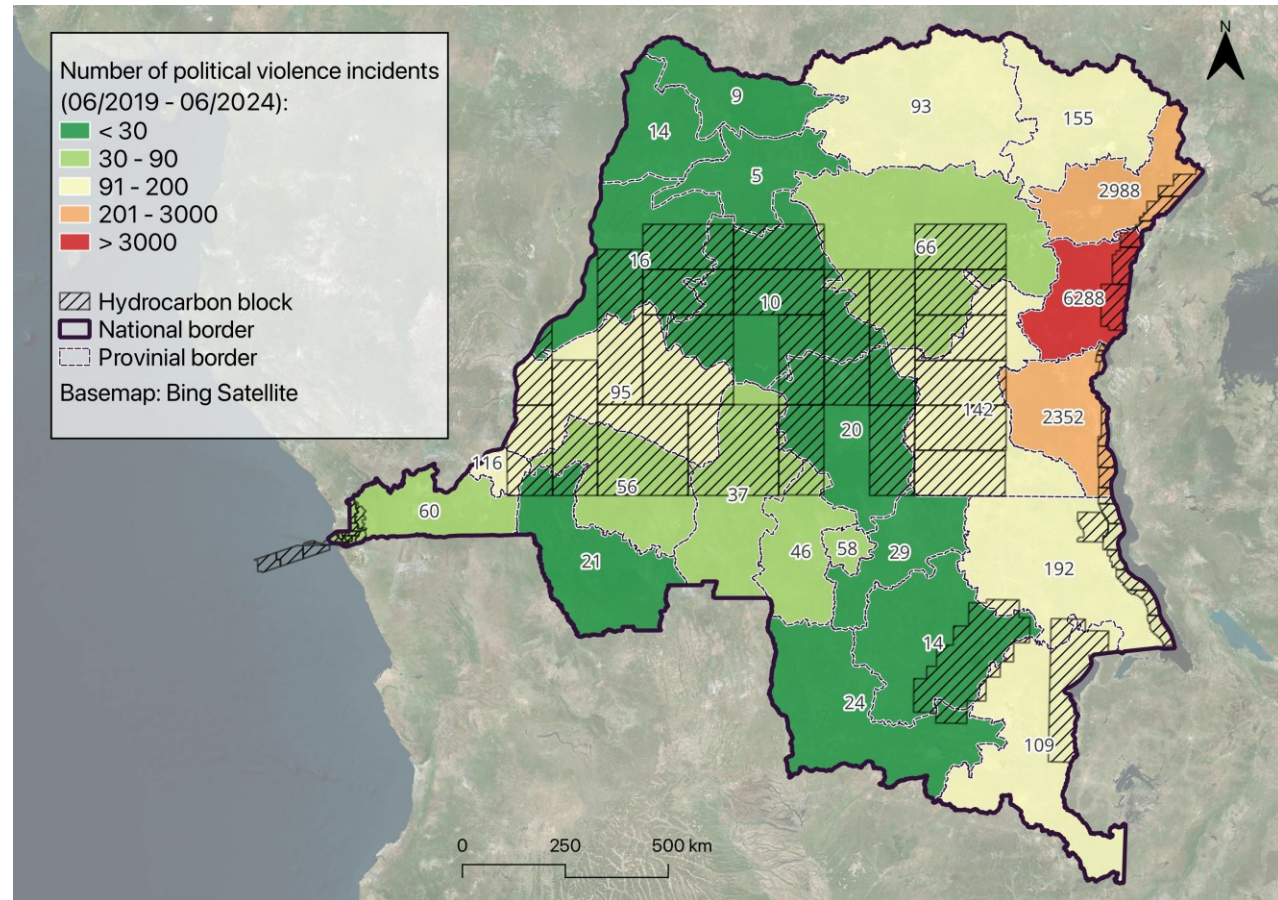
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, ACLED)

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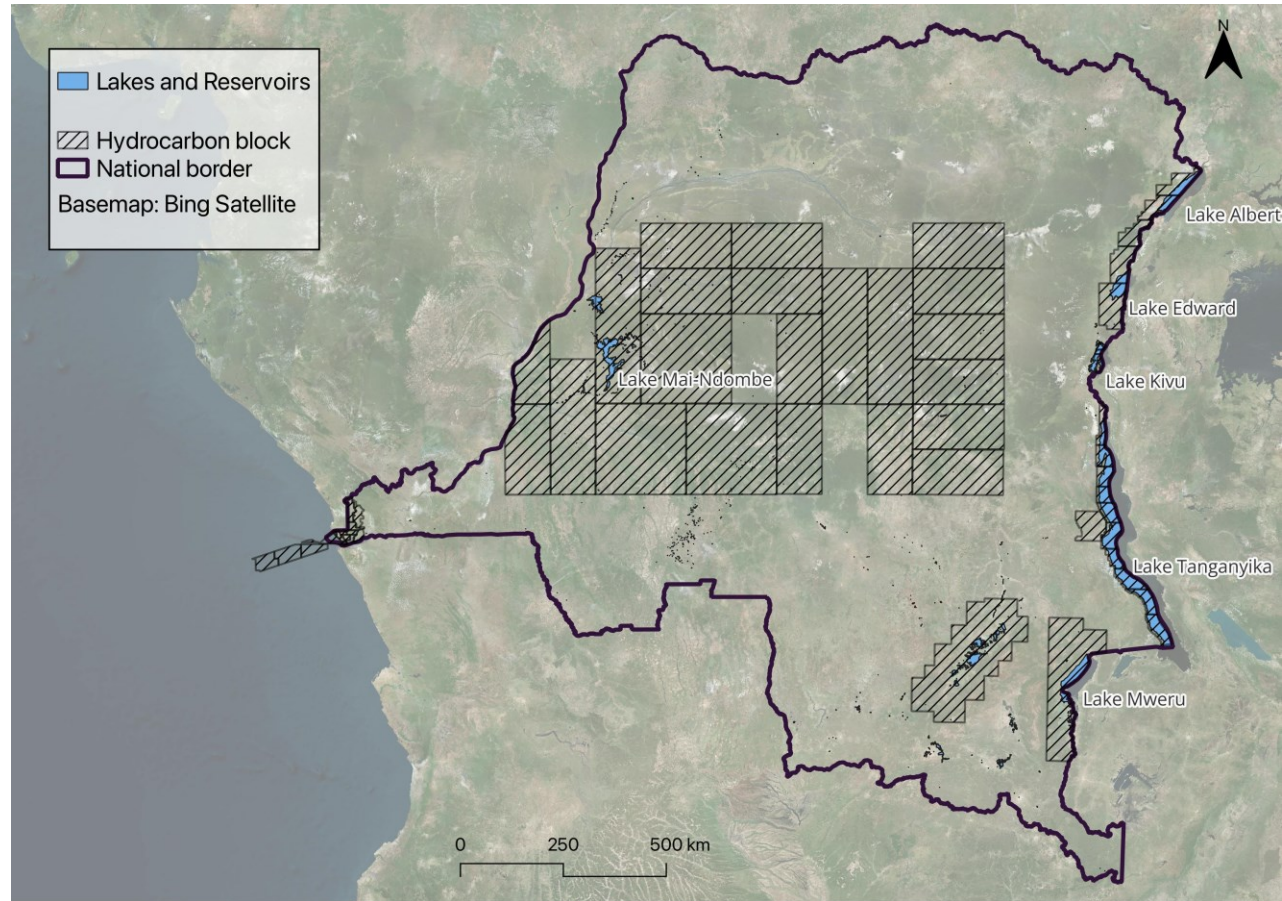
Environmental index

- Lakes and reservoirs (cost)

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, HydroSheds)

Definition of the analysis indices

Environmental index

- Lakes and reservoirs (cost)

- Hydrographic network (cost)

Legend:
- Hydrographic network
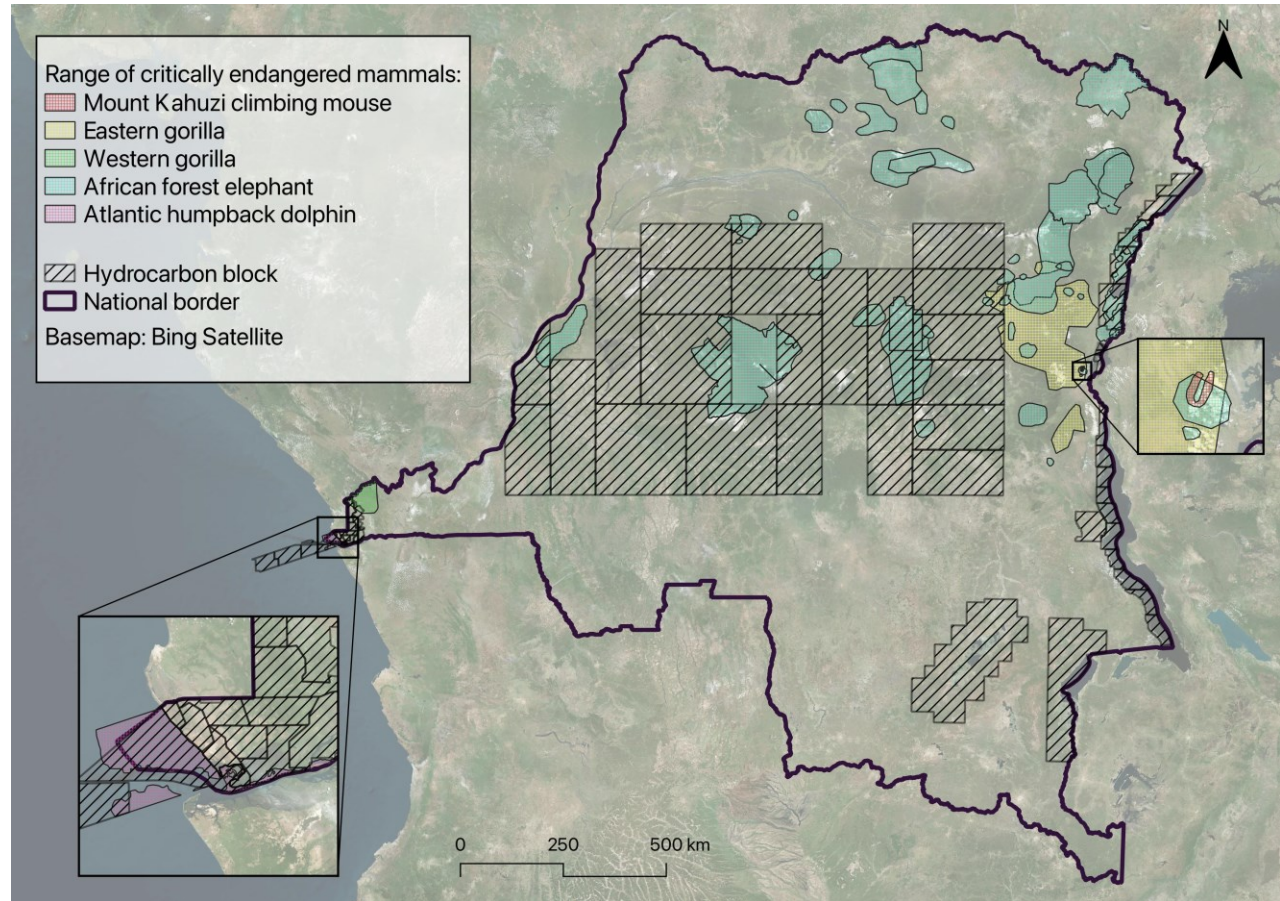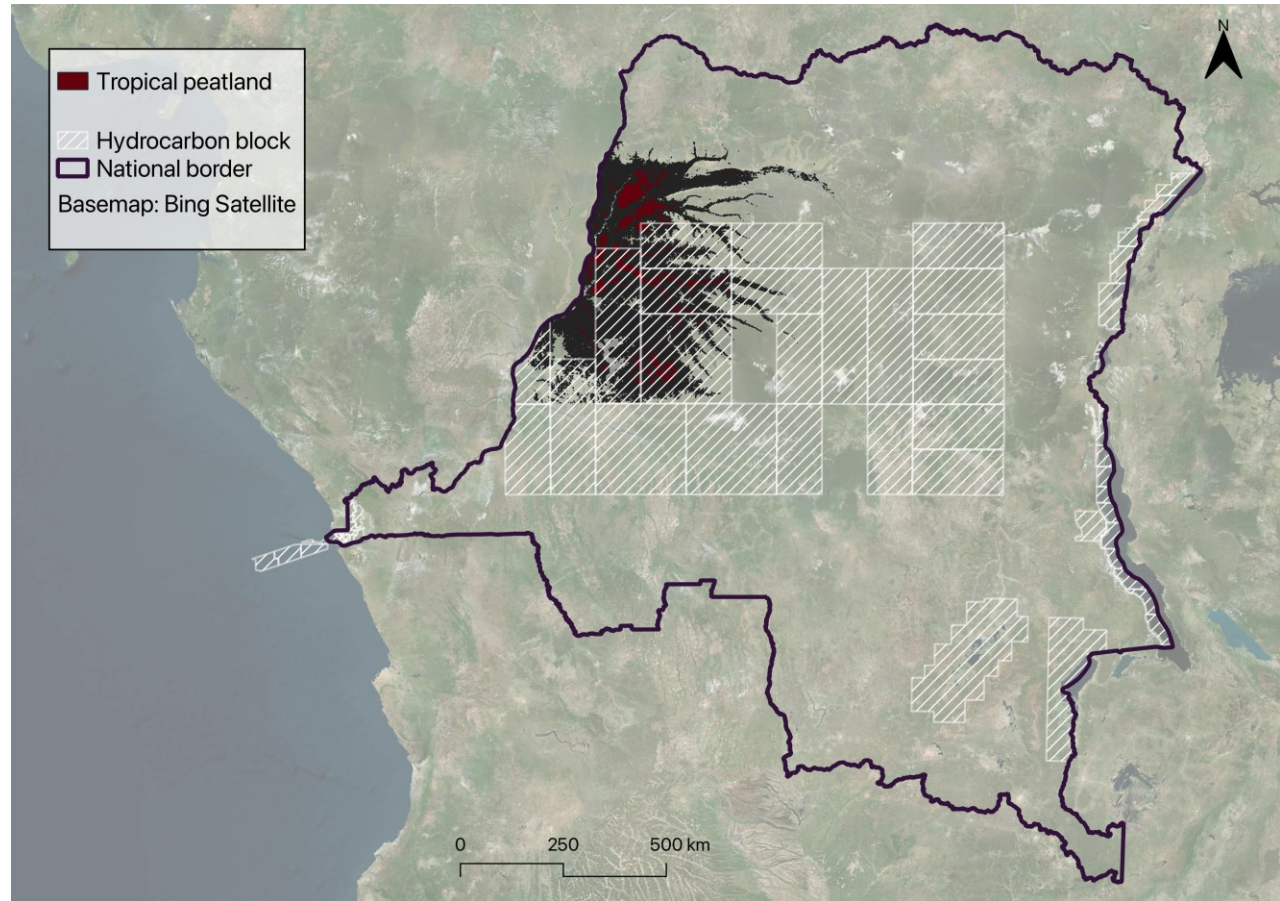- Hydrocarbon block
- National border
- Basemap: Bing Satellite

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, HydroSheds)

Definition of the analysis indices

Environmental index

- Lakes and reservoirs
  (cost)

- Hydrographic network
  (cost)

- Protected natural areas
  (cost)

Legend:
- Internationally protected area (UNESCO and Ramsar sites)
- Nationally protected area
- Hydrocarbon block
- National border
- Basemap: Bing Satellite

0   250   500 km
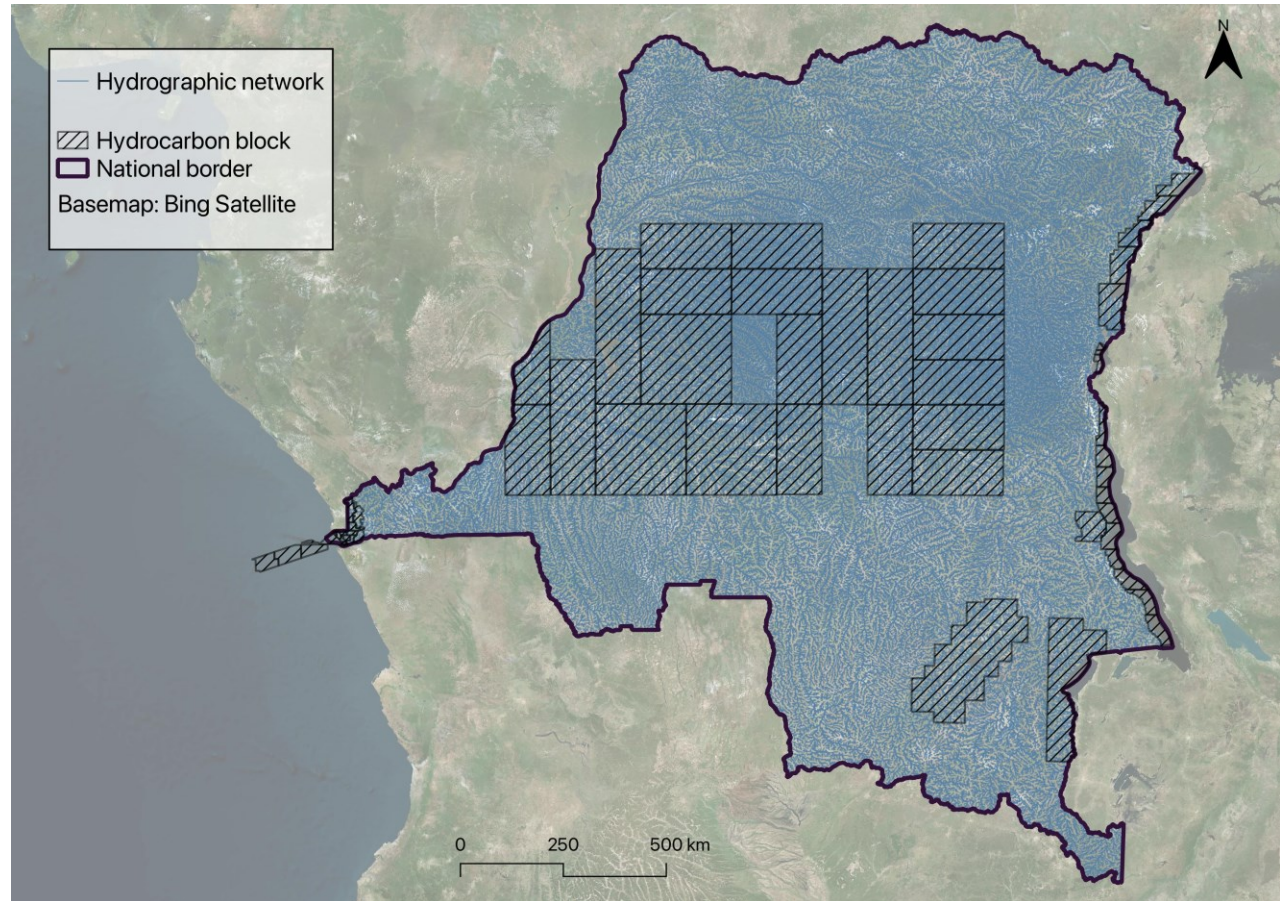
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, Ministry of Environment and Sustainable Development of the DRC)

Definition of the analysis indices

Environmental index

- Lakes and reservoirs (cost)

- Hydrographic network (cost)

- Protected natural areas (cost)

- Endangered species (cost)

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, IUCN)

Definition of the analysis indices

Environmental index

- Lakes and reservoirs (cost)

- Hydrographic network (cost)

- Protected natural areas (cost)

- Endangered species (cost)

- Tropical peatland (cost)

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, Dargie G.C., et al.)

Definition of the analysis indices

Social index

- Unemployment rate
  (benefit)
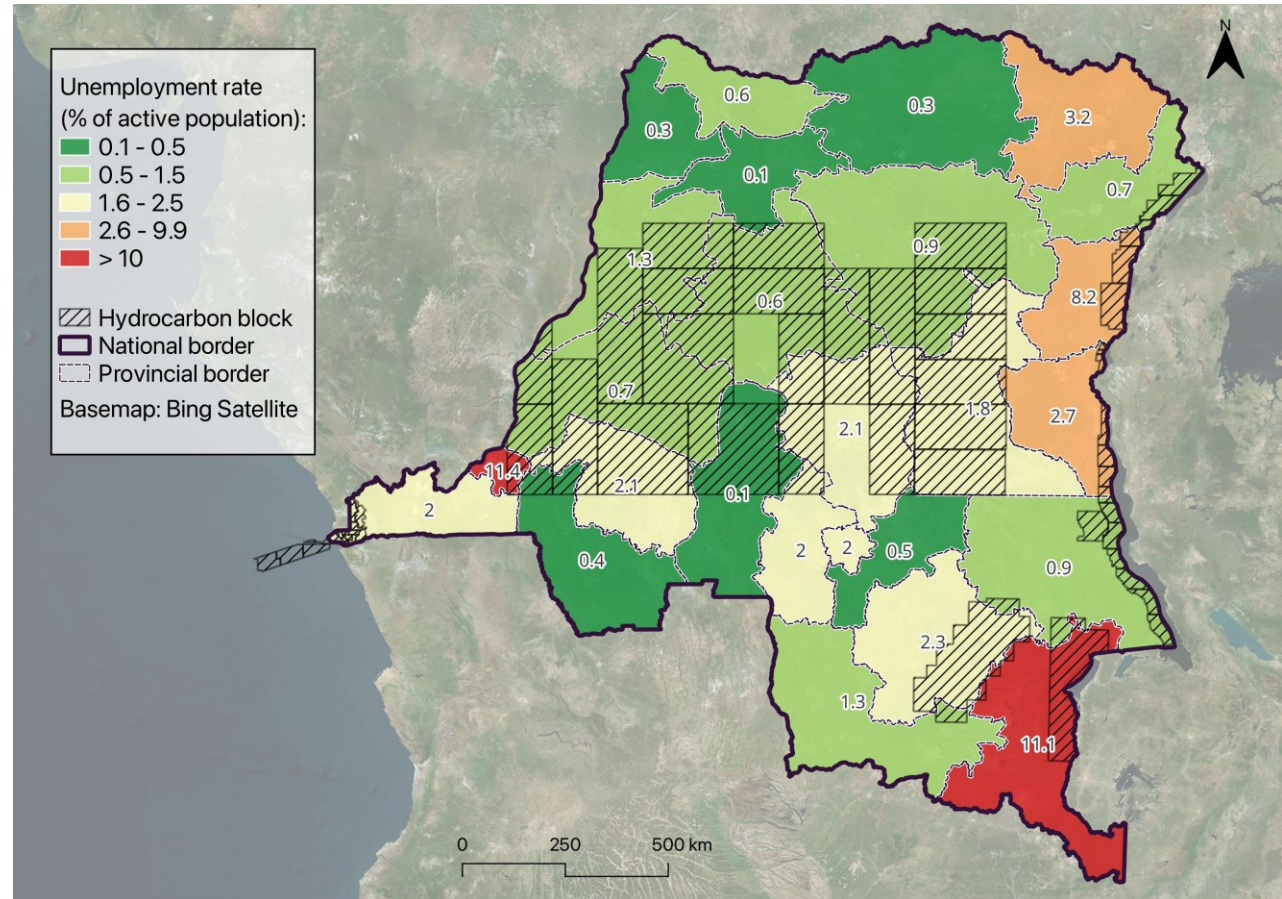
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, United Nations Department of Economic and Social Affairs)

Definition of the analysis indices

Social index

- Unemployment rate (benefit)

- Human development index (benefit)
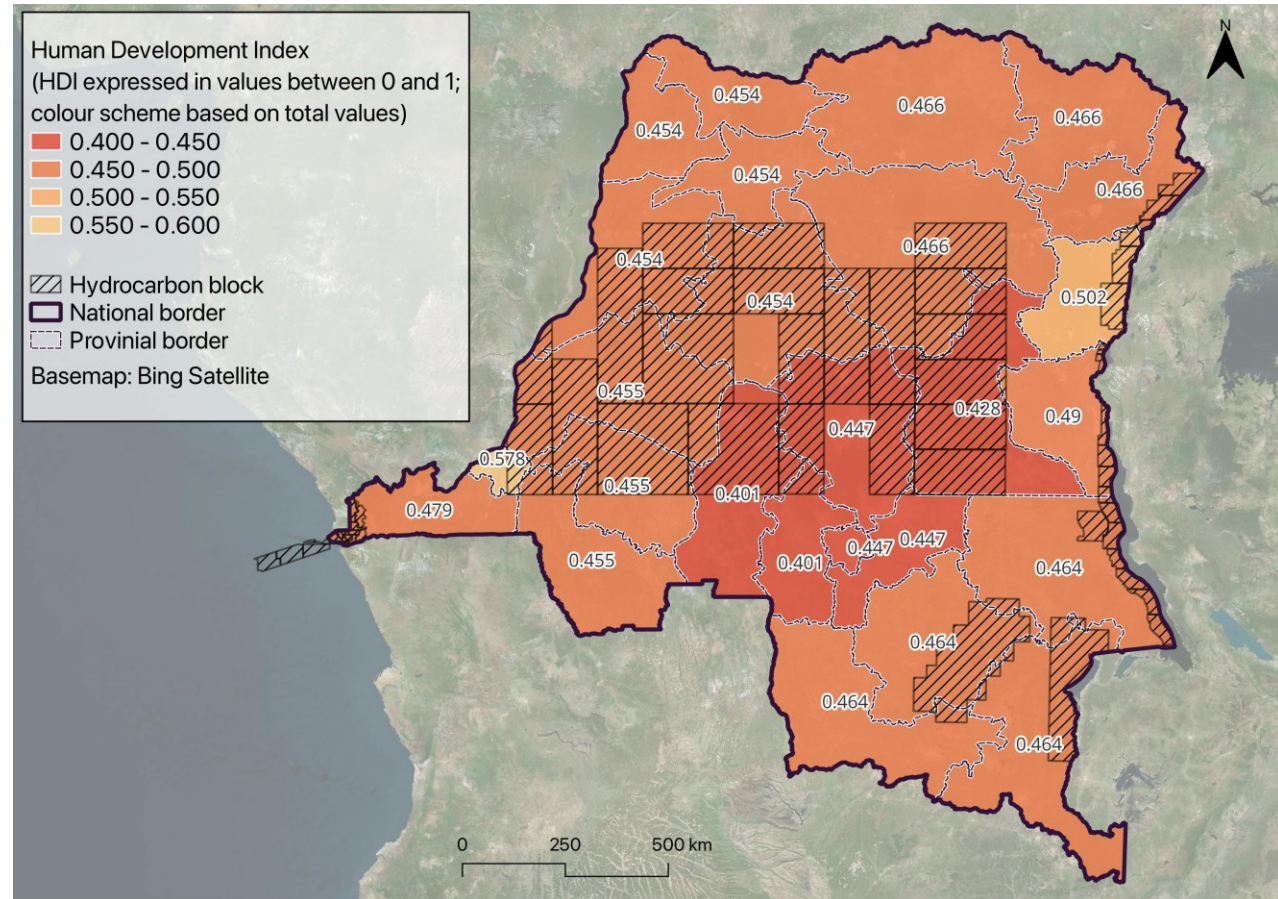
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, Global Data Lab)

Definition of the analysis indices

Social index

- Unemployment rate
  (benefit)

- Human development index
  (benefit)

- Population density
  (cost)
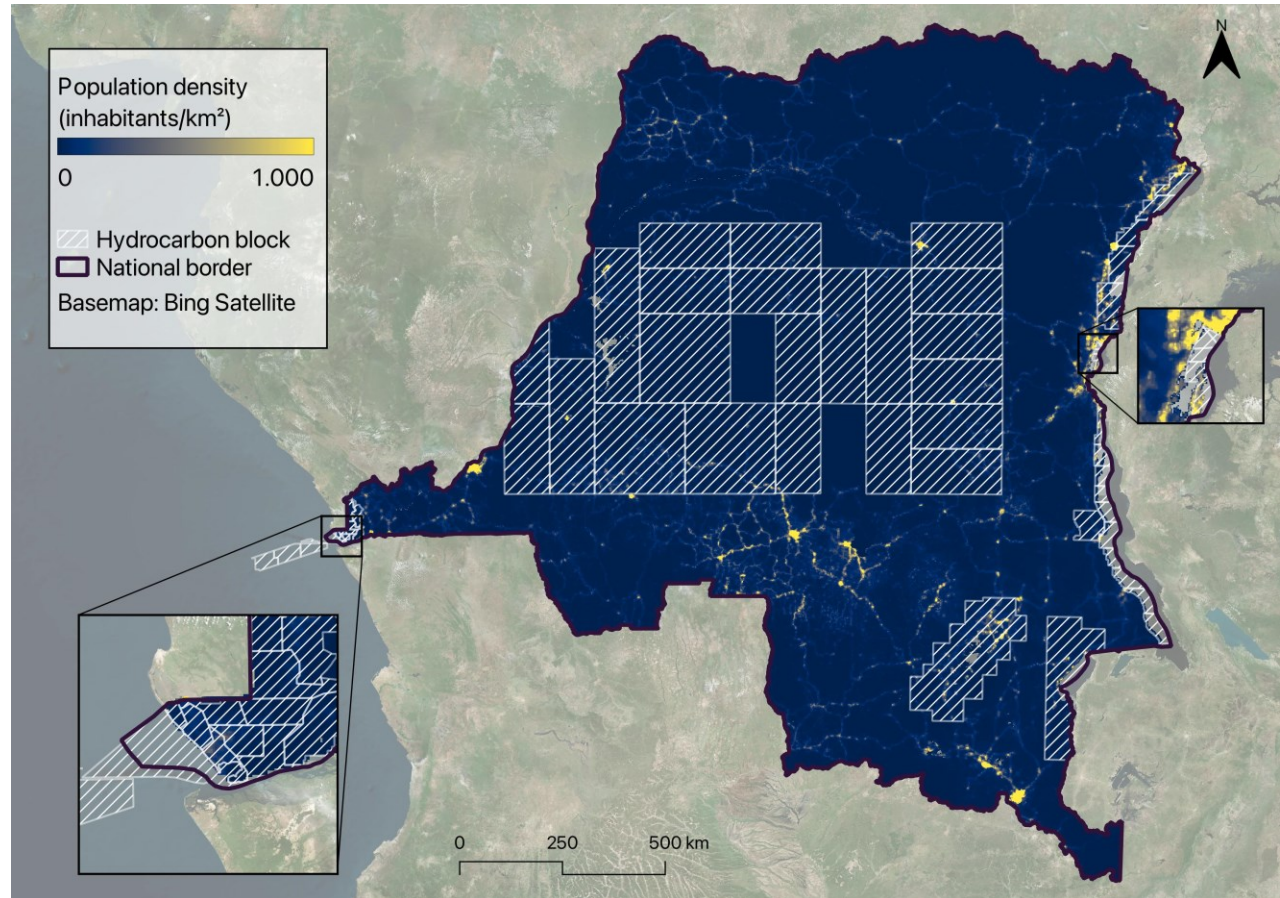
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, DXH)

Definition of the analysis indices

Social index

- Unemployment rate (benefit)

- Human development index (benefit)

- Population density (cost)

- Indigenous territories (cost)
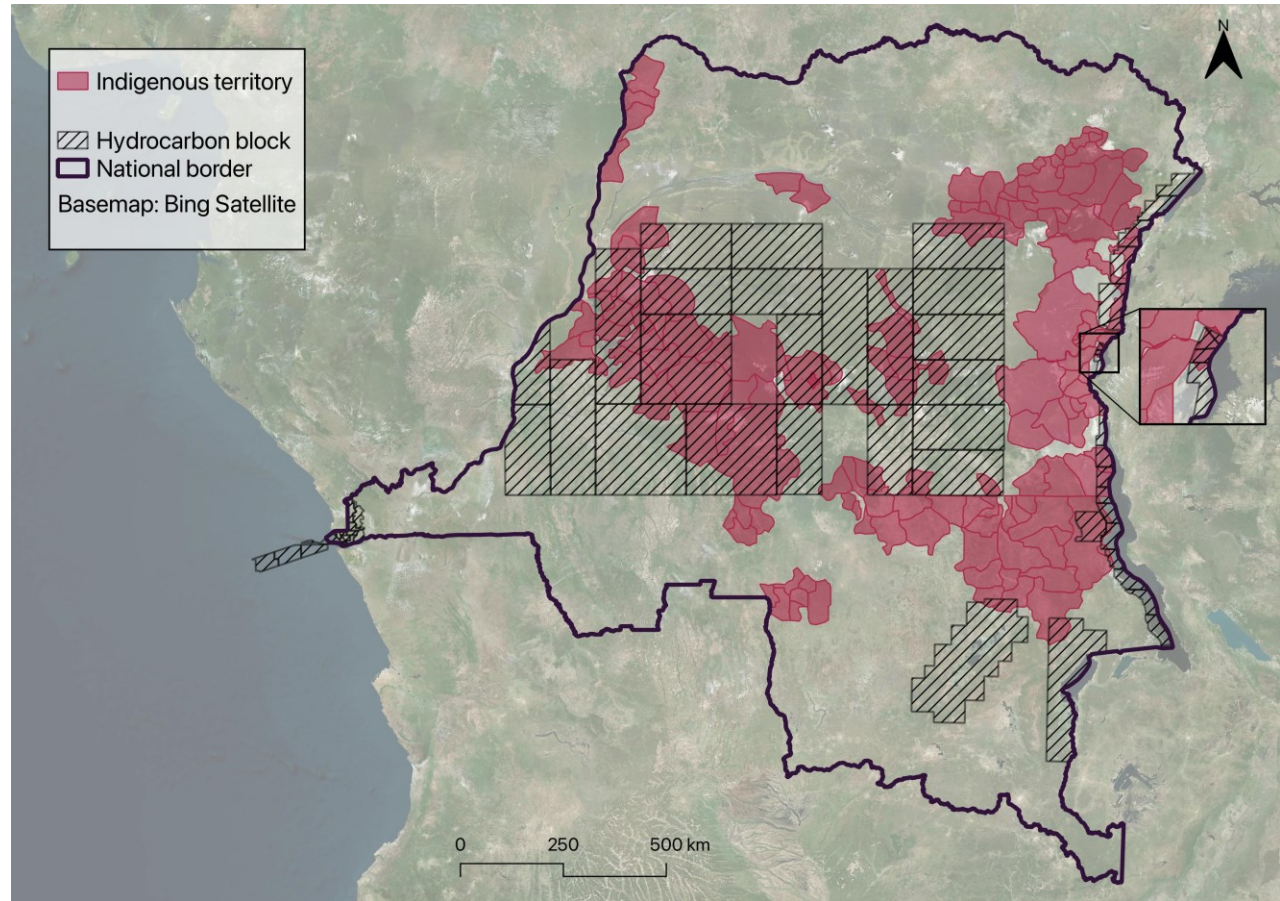
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, DGPA)

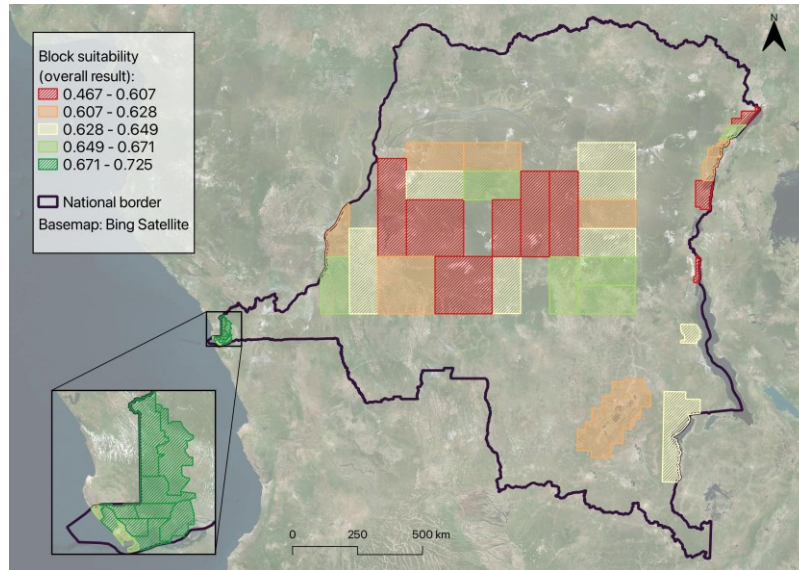# Definition of the analysis indices

Social index

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- Population density
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- Indigenous territories
  (cost)

- Critical natural assets
  (cost)
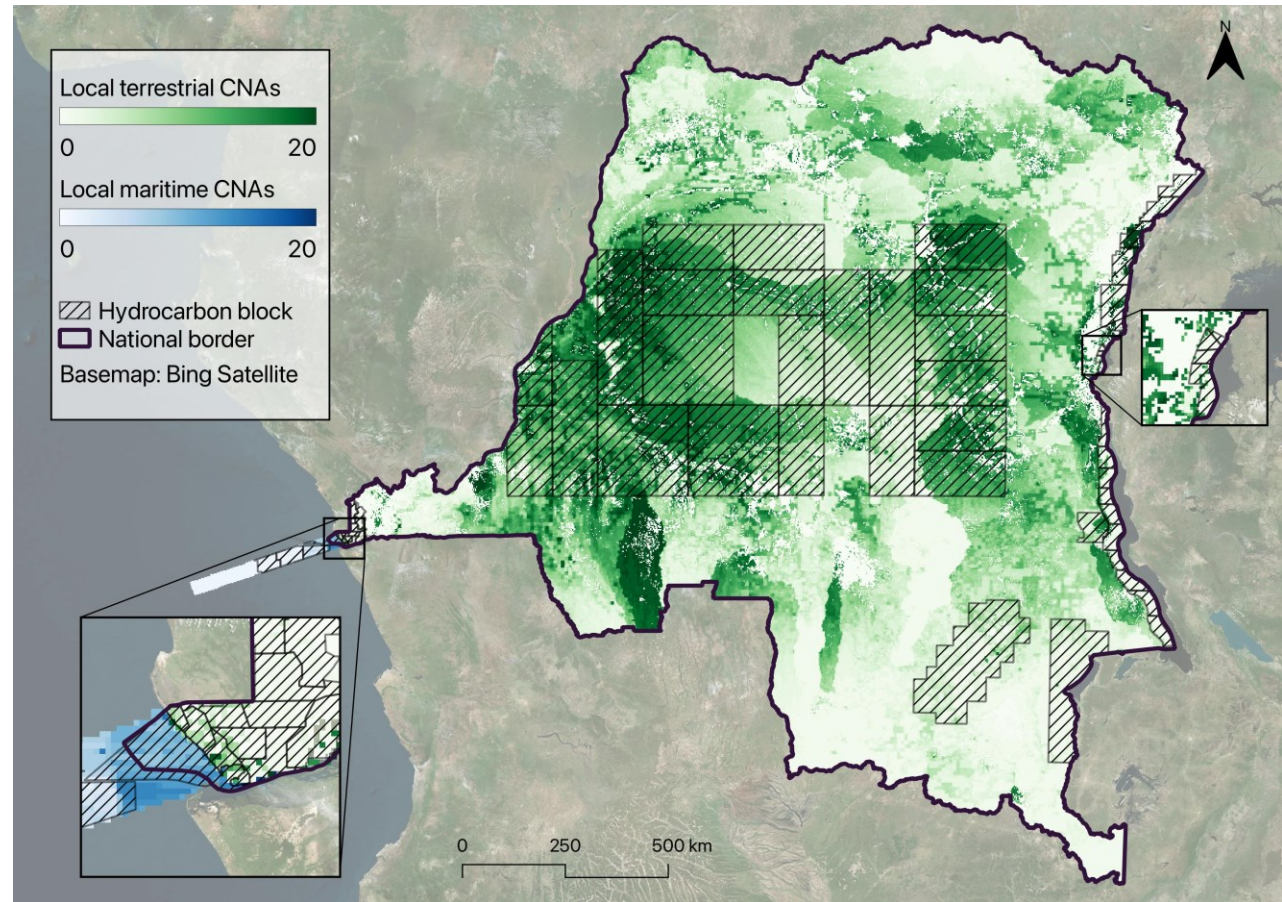
(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG, Chaplin-Kramer R., et al.)
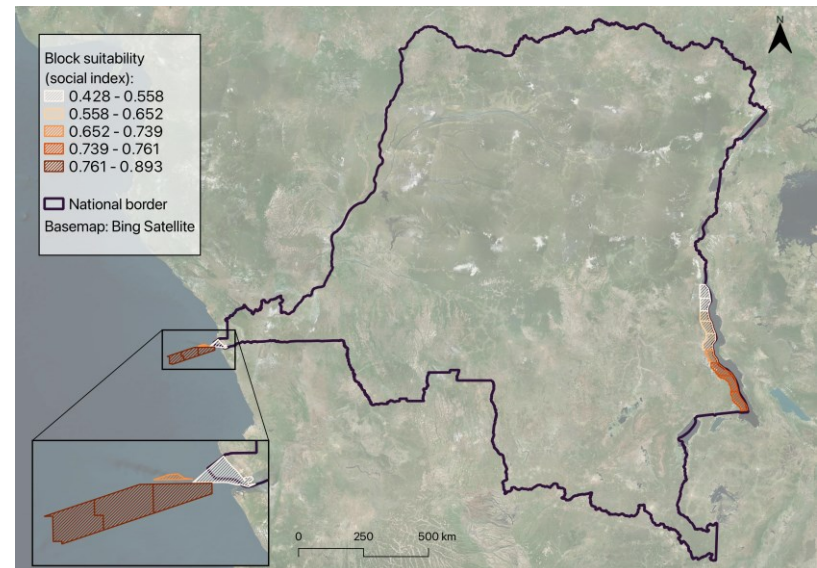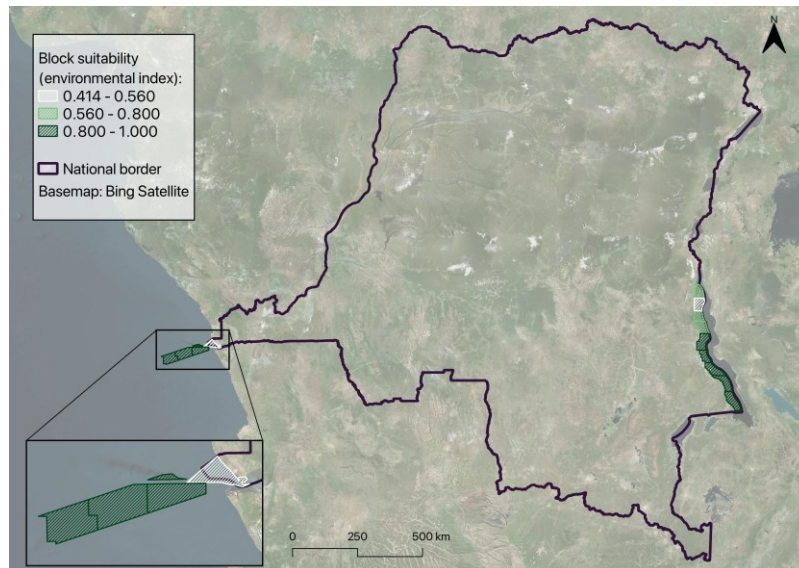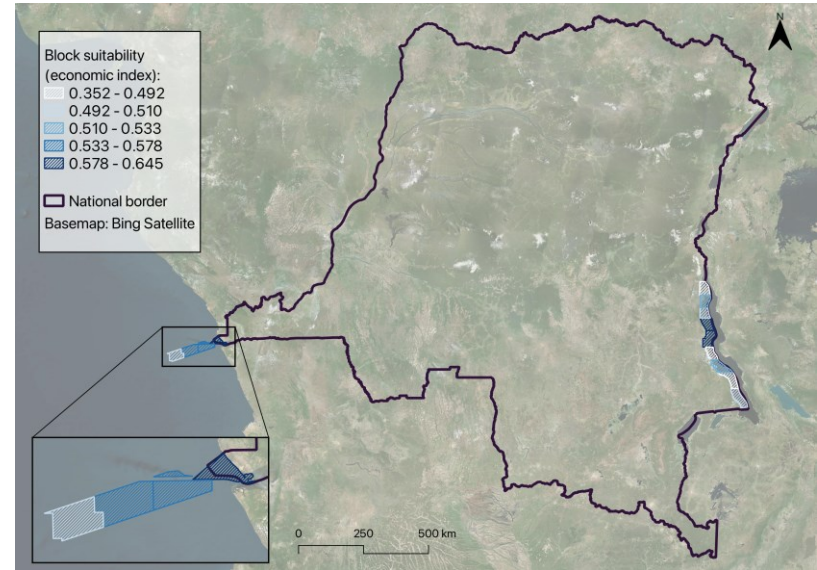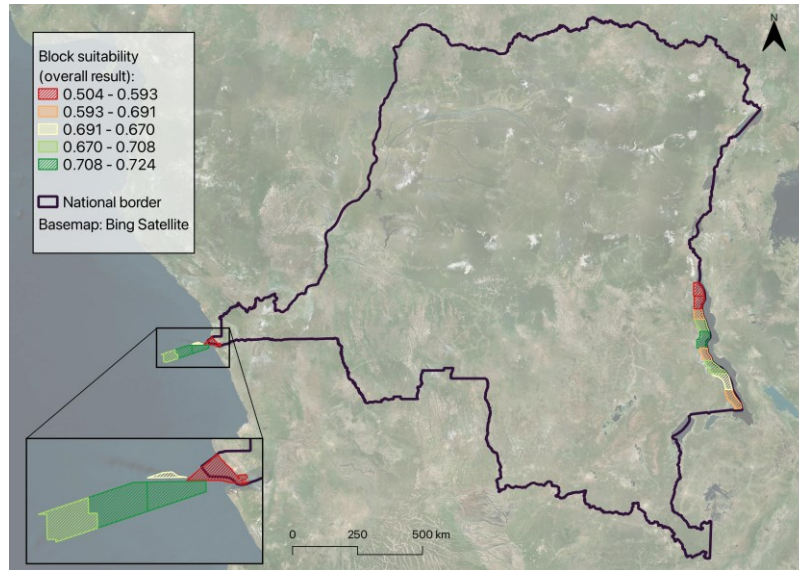
TOPSIS analysis results

Onshore oil blocks
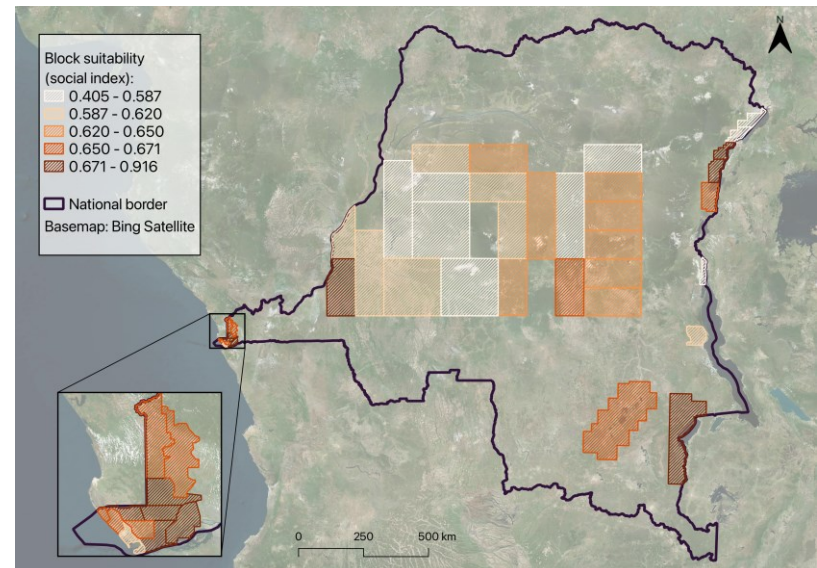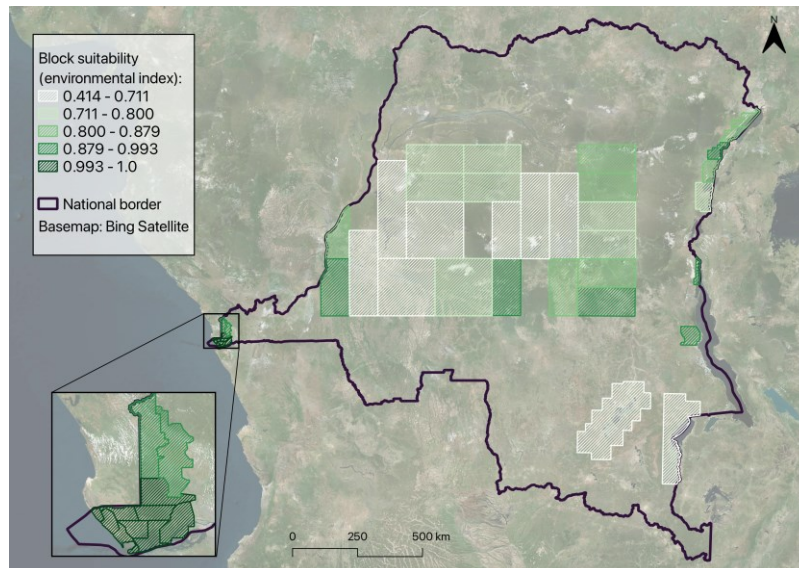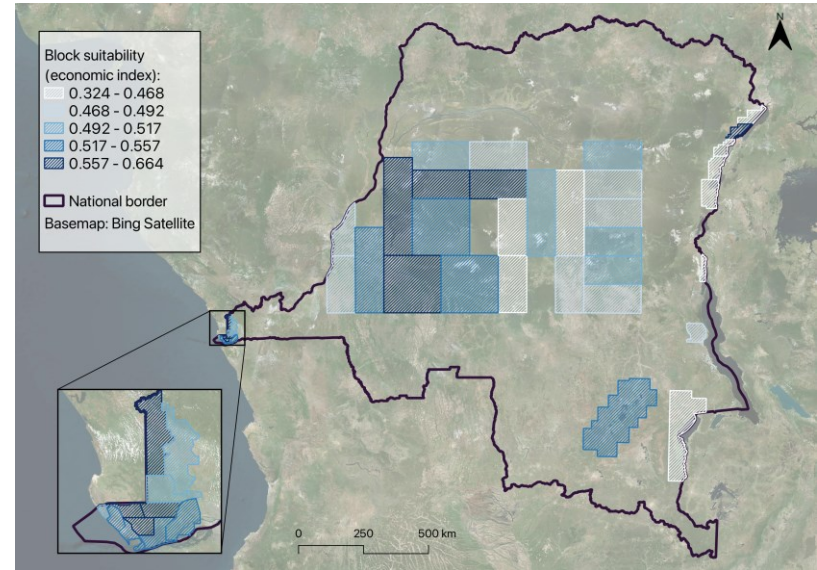
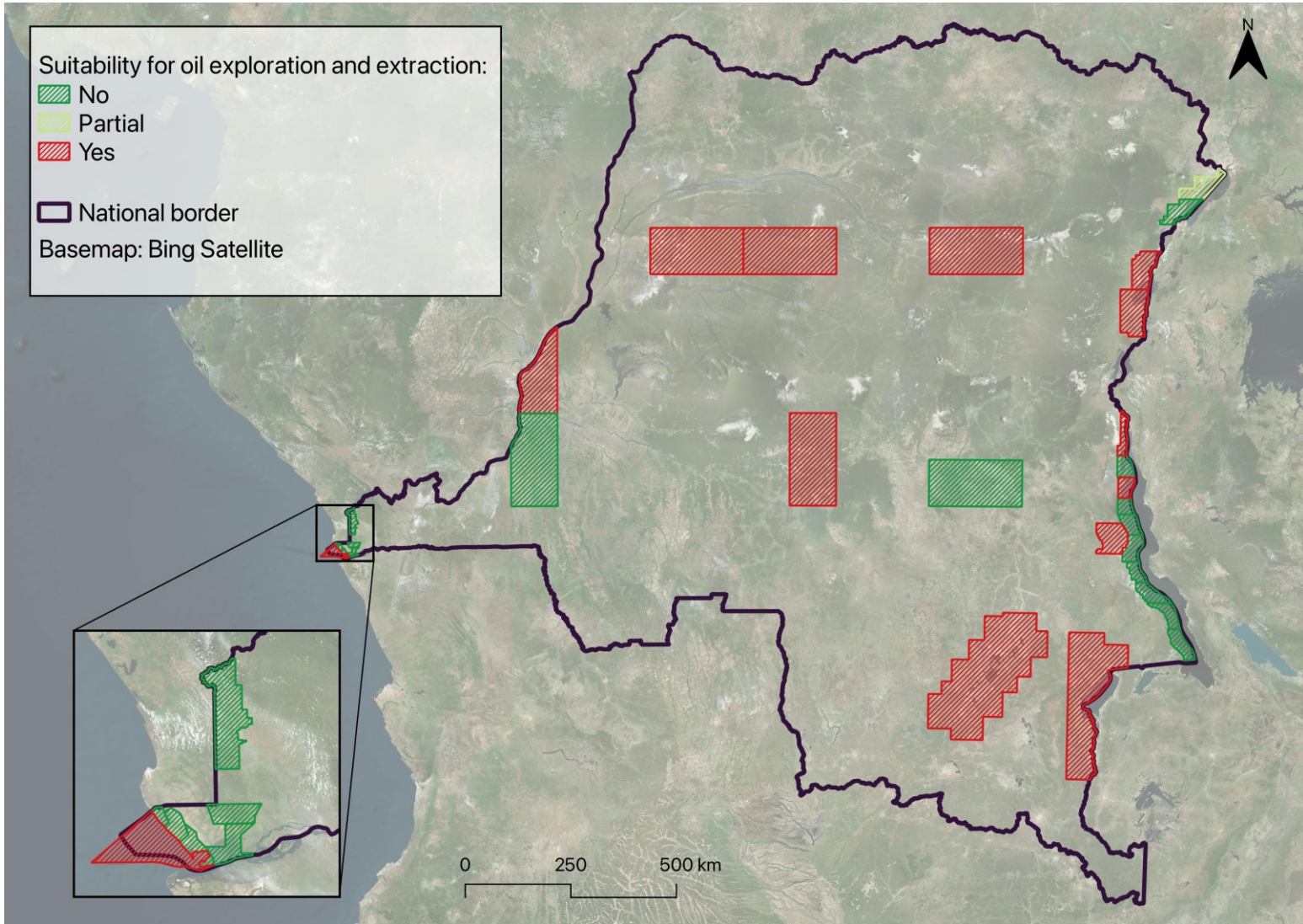(Data sources: Ministry of Hydrocarbons of the DRC, OSM)

TOPSIS analysis results

Offshore oil blocks

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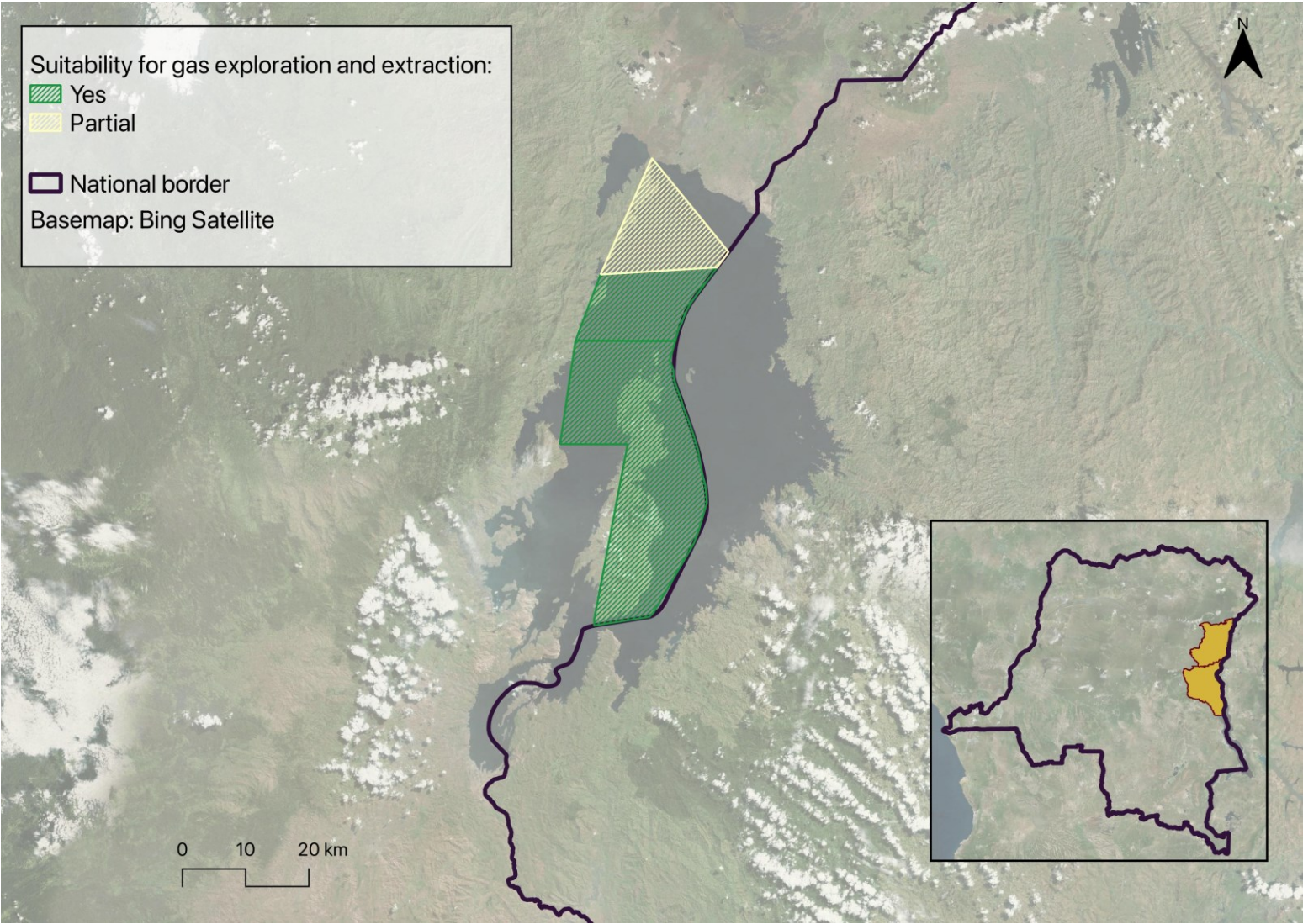
Identification of unburnable areas

Oil blocks

Suitability for oil exploration and extraction:
- No
- Partial
- Yes

National border

Basemap: Bing Satellite

0   250   500 km

(Data sources: Ministry of Hydrocarbons of the DRC, OSM, ANPG)

Identification of unburnable areas

Gas blocks

(Data sources: Ministry of Hydrocarbons of the DRC, OSM)

Thank you for your attention

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