

# A importância do petróleo e gás para o desenvolvimento do Maranhão

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*Presidente da Gasmar*

*Ex-diretor da ANP*

# Roteiro

- **O Maranhão no cenário de óleo e gás**
- **A demanda de energia no planeta;**
- **A Margem Equatorial;**

# O MARANHÃO NO CENÁRIO DE ÓLEO E GÁS

**540 milhões de anos**

# BACIAS SEDIMENTARES



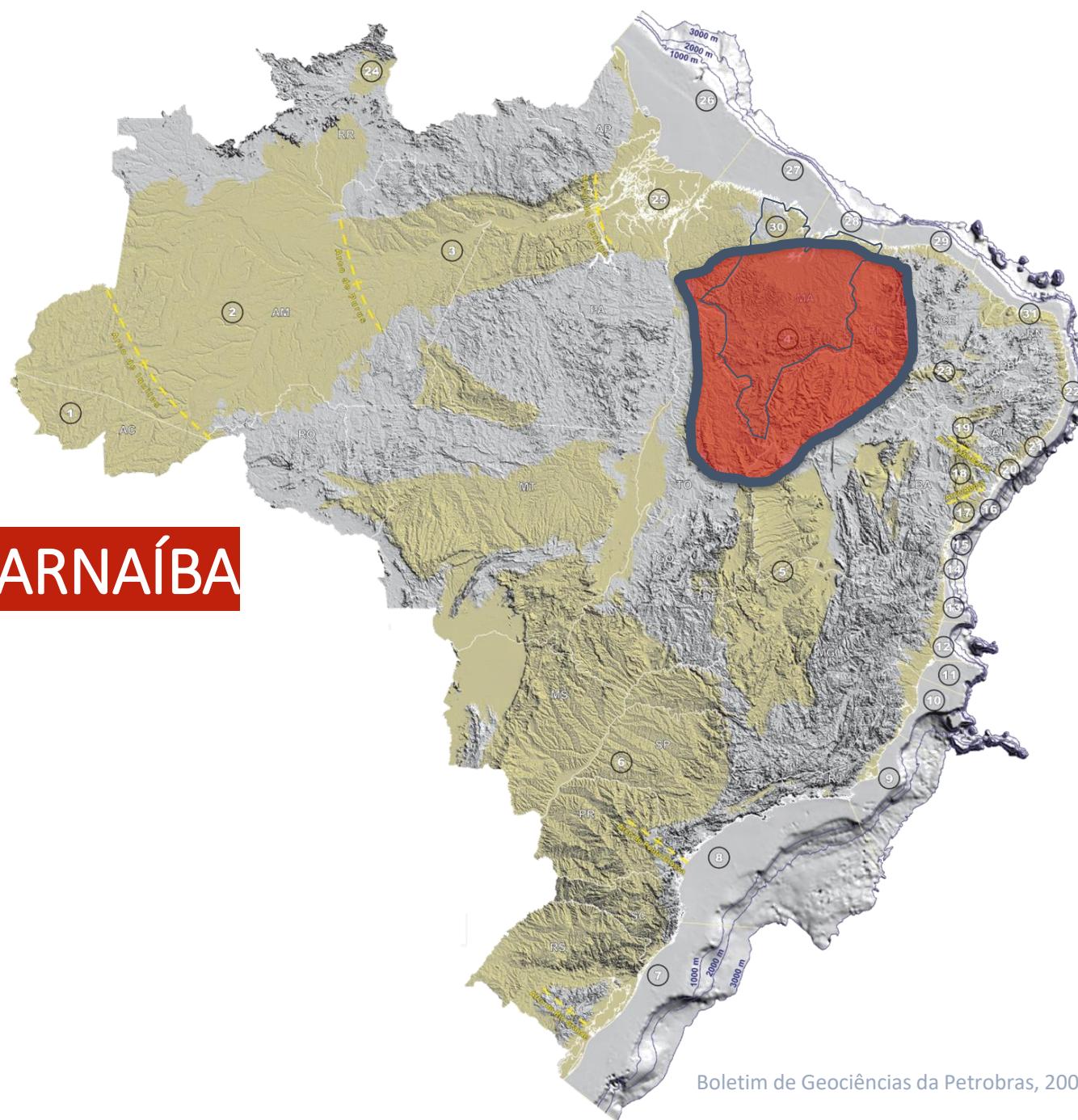
Boletim de Geociências da Petrobras, 2007

# BACIAS SEDIMENTARES



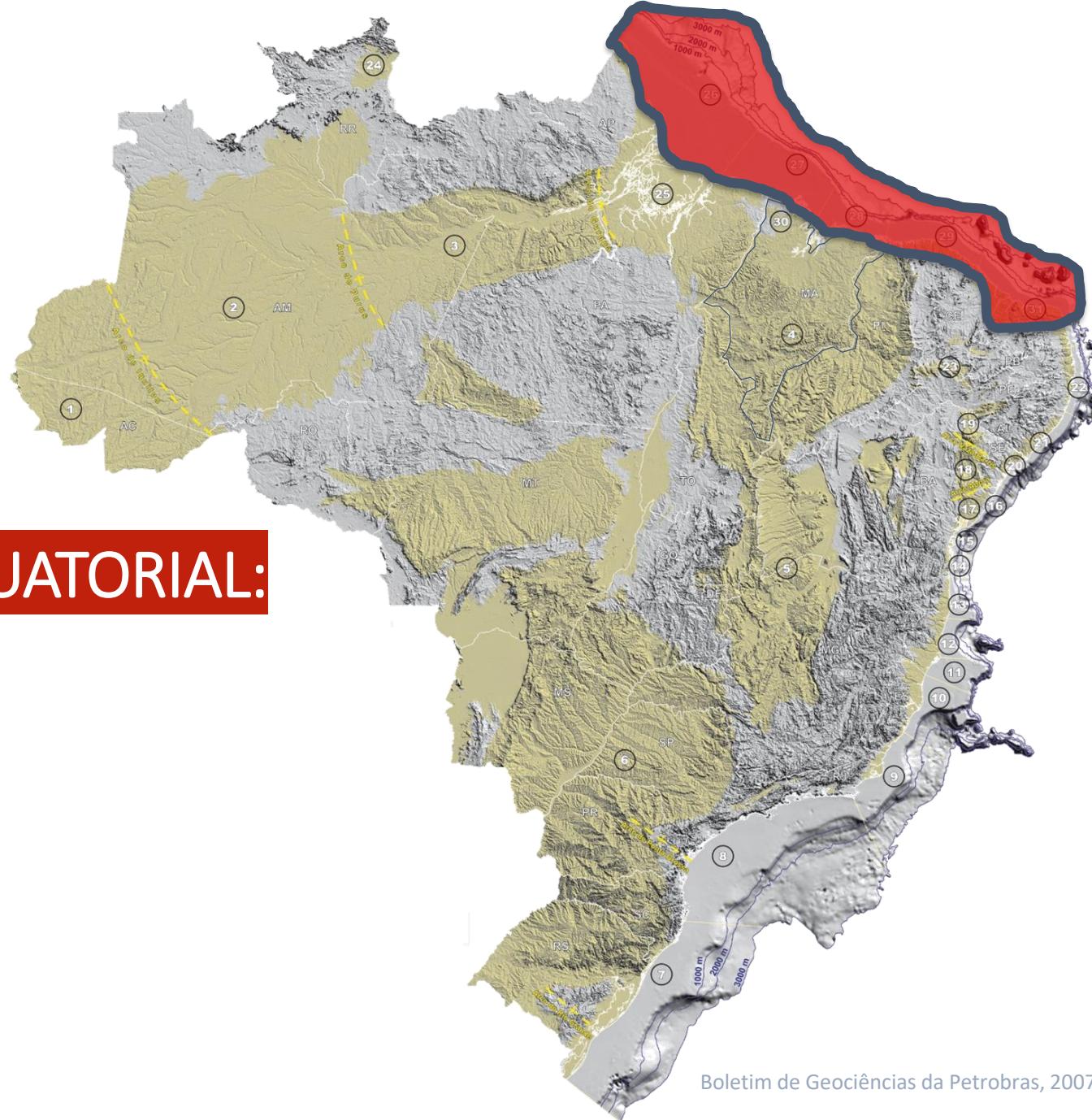
Boletim de Geociências da Petrobras, 2007

# BACIA DO PARNAÍBA

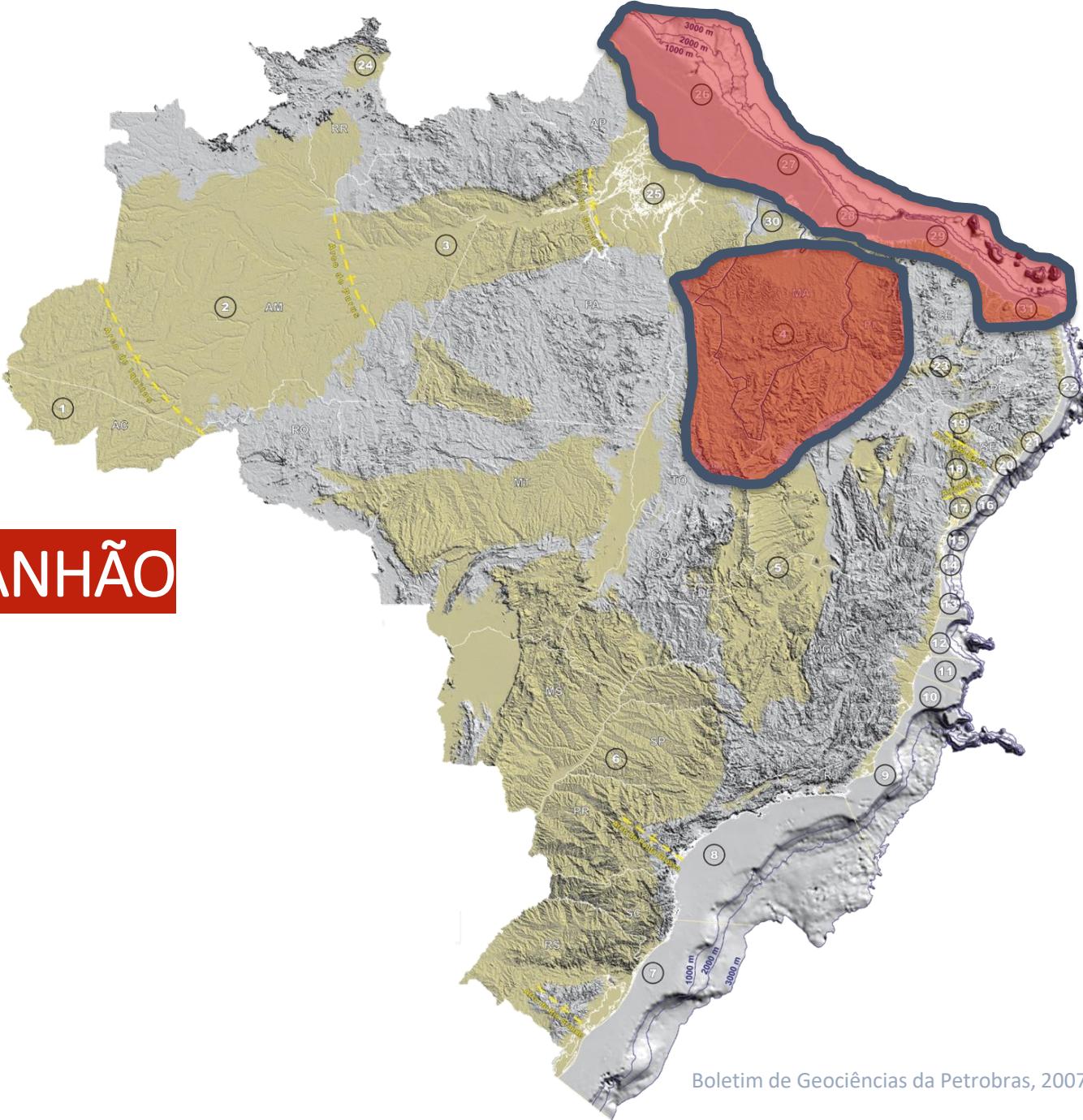


Boletim de Geociências da Petrobras, 2007

## MARGEM EQUATORIAL:

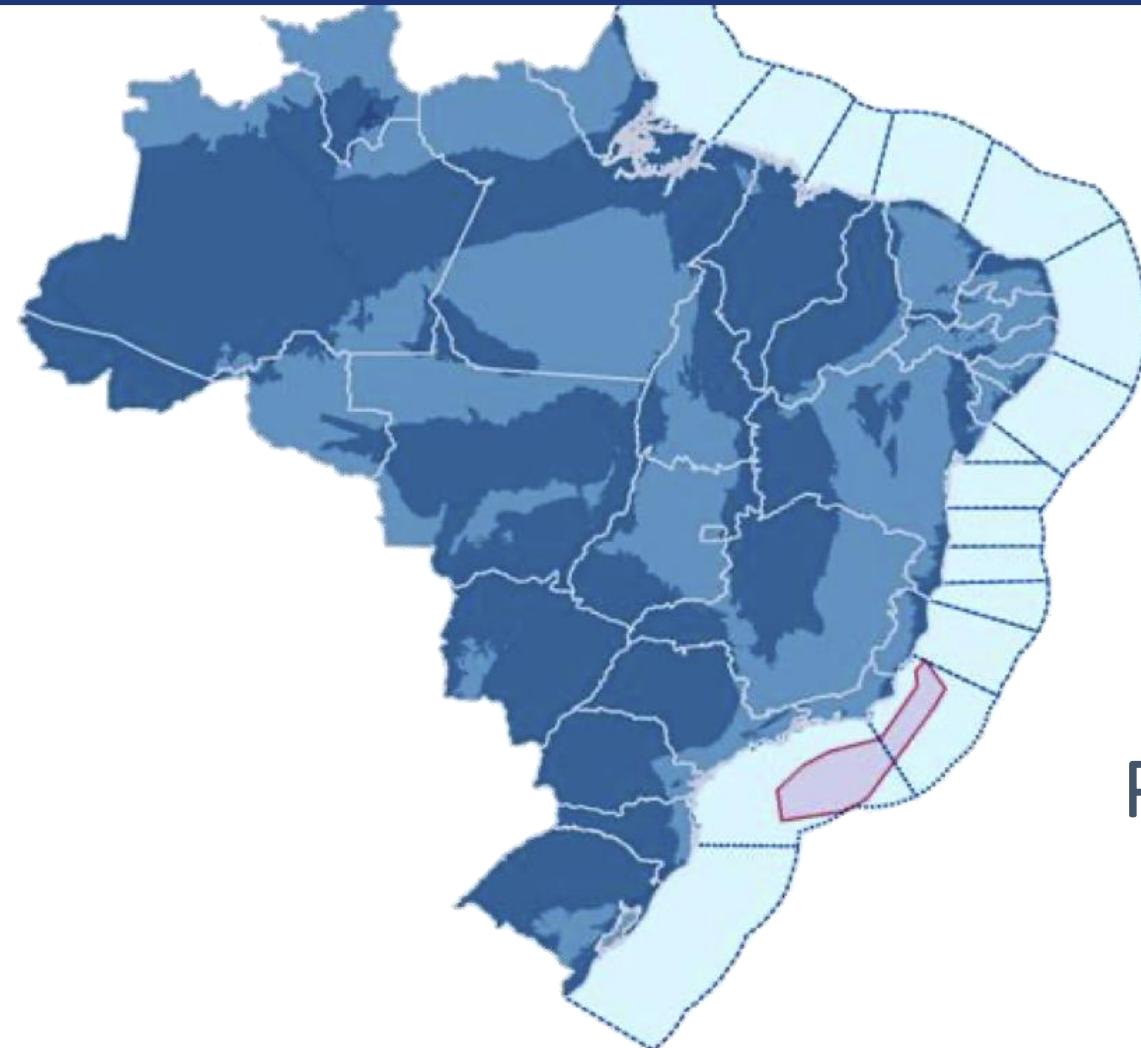


# O MARANHÃO



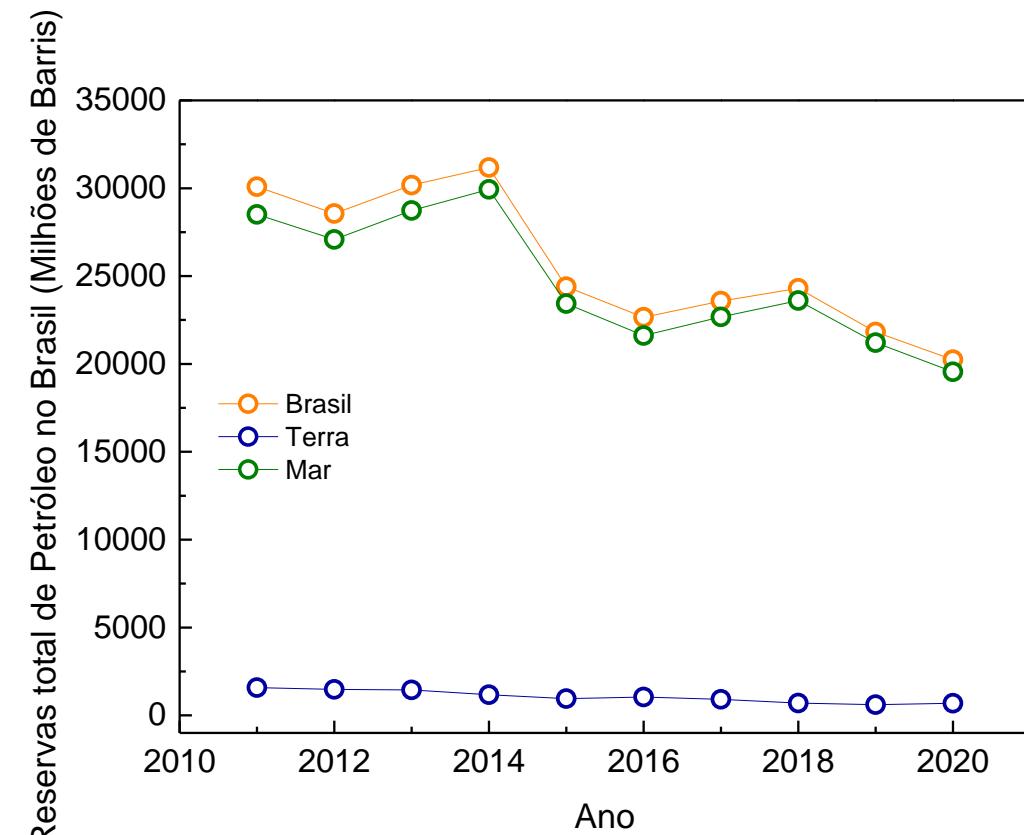
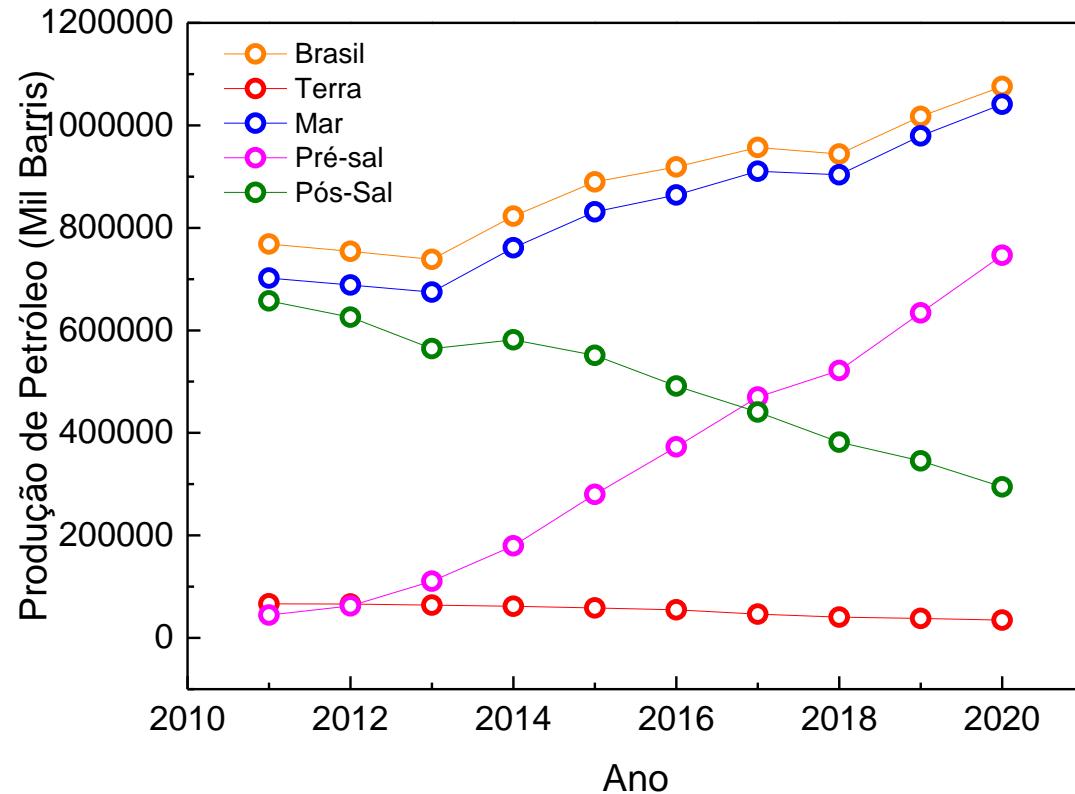
Boletim de Geociências da Petrobras, 2007

# Produção do Pré-Sal no Brasil



PRÉ SAL

# Produção do Pré-Sal no Brasil



# A Margem Equatorial Brasileira

## MARGEM EQUATORIAL BRASILEIRA



# A DEMANDA DE ENERGIA NO PLANETA

# Valor da Informação

2010

2025

Rank	First quarter <sup>[83]</sup>		Second quarter <sup>[84]</sup>		Third quarter <sup>[85]</sup>	
1		PetroChina ▼329,259.7		ExxonMobil ▼291,789.1		ExxonMobil ▲314,622.5
2		ExxonMobil ▼316,230.8		PetroChina ▼268,504.8		PetroChina ▲270,889.9
3		Microsoft ▼256,864.7		Apple ▲228,876.8		Apple ▲259,223.4
4		ICBC ▼246,419.8		ICBC ▼211,258.7		Petrobras ▲220,616.5
5		Apple ▲213,096.7		Microsoft ▼201,655.8		ICBC ▲213,364.1

Rank	First quarter
1	Apple ▼3,337,000 <sup>[39]</sup>
2	Microsoft ▼2,791,000 <sup>[40]</sup>
3	Nvidia ▼2,644,000 <sup>[41]</sup>
4	Amazon ▼2,016,000 <sup>[42]</sup>
5	Alphabet ▼1,895,000 <sup>[43]</sup>

# A Revolução da Inteligência Artificial



# MUDANÇA DE COISAS PARA CONCEITOS



- “O Uber, a maior empresa de táxis do mundo, não possui sequer um veículo.
- O Facebook, o proprietário de mídia popular do mundo, não cria nenhum conteúdo.
- Alibaba, o varejista mais valioso, não possui estoques.
- E o Airbnb, o maior provedor de hospedagem do mundo, não possui sequer um imóvel”

–Tom Goodwin

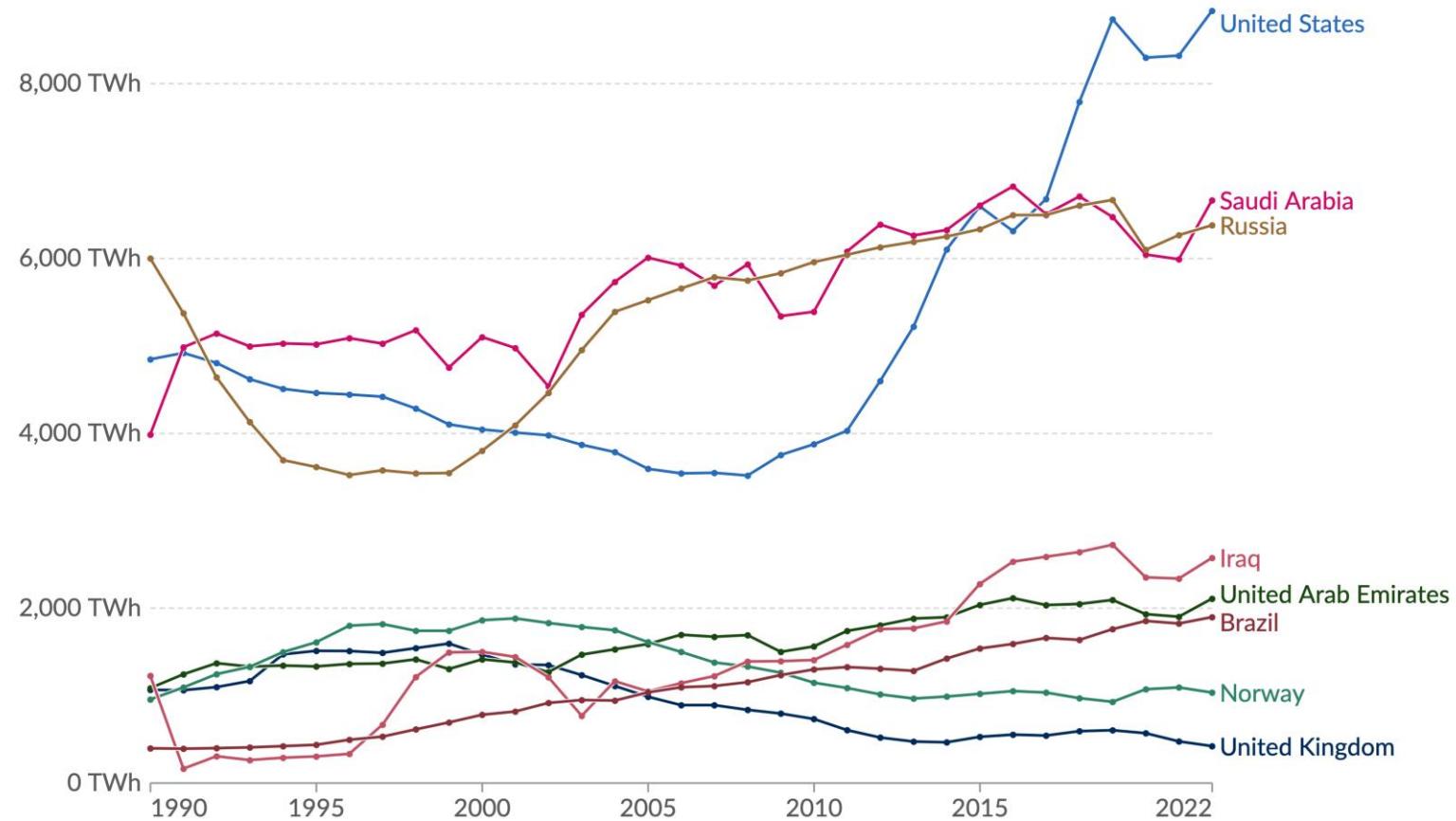
# Produção Global de Petróleo Bruto

*EUA lideram a partir de 2015*

## Oil production

Measured in terawatt-hours.

Our World  
in Data

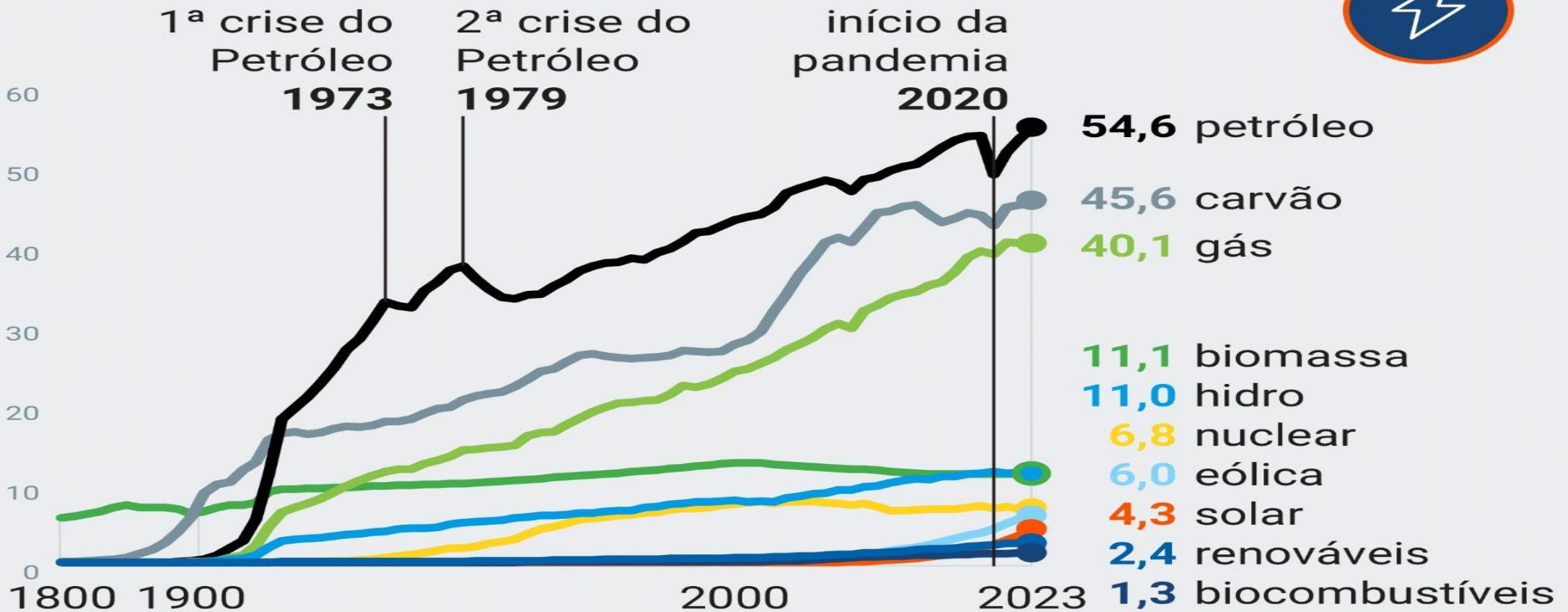


Data source: Energy Institute - Statistical Review of World Energy (2023); The Shift Data Portal (2019)  
[OurWorldInData.org/fossil-fuels](http://OurWorldInData.org/fossil-fuels) | CC BY

# ENERGIA

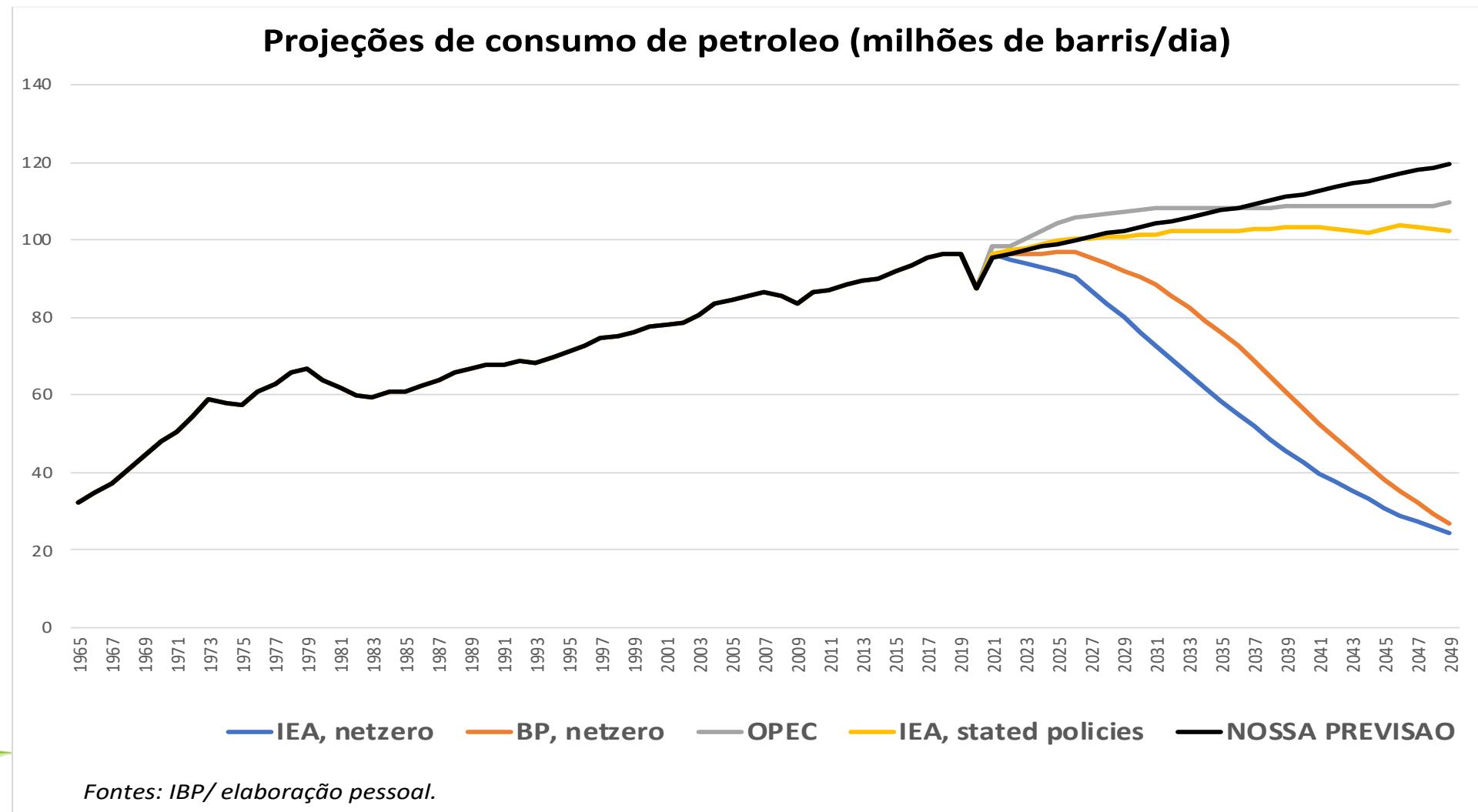
## MUNDO DIVERSIFICOU FONTES ENERGÉTICAS DESDE 1800

petróleo, carvão e gás natural, porém, ainda lideram em consumo total (em mil terawatts-hora)



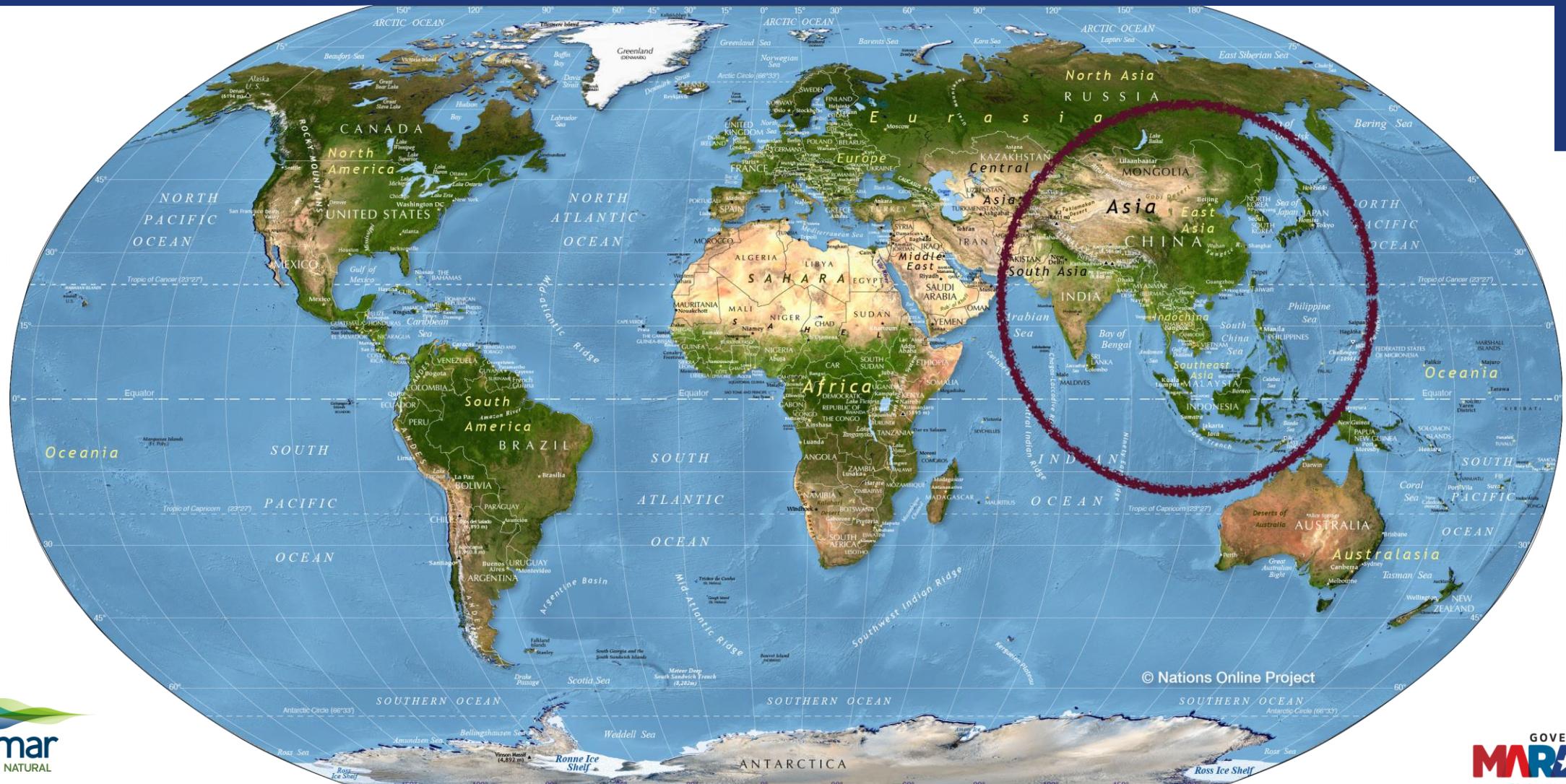
fonte: Energy Institute – Institute Statistical Review of World Energy (2024): Vaclac Smil (2017)

# Consumo estimado de petróleo em 2050

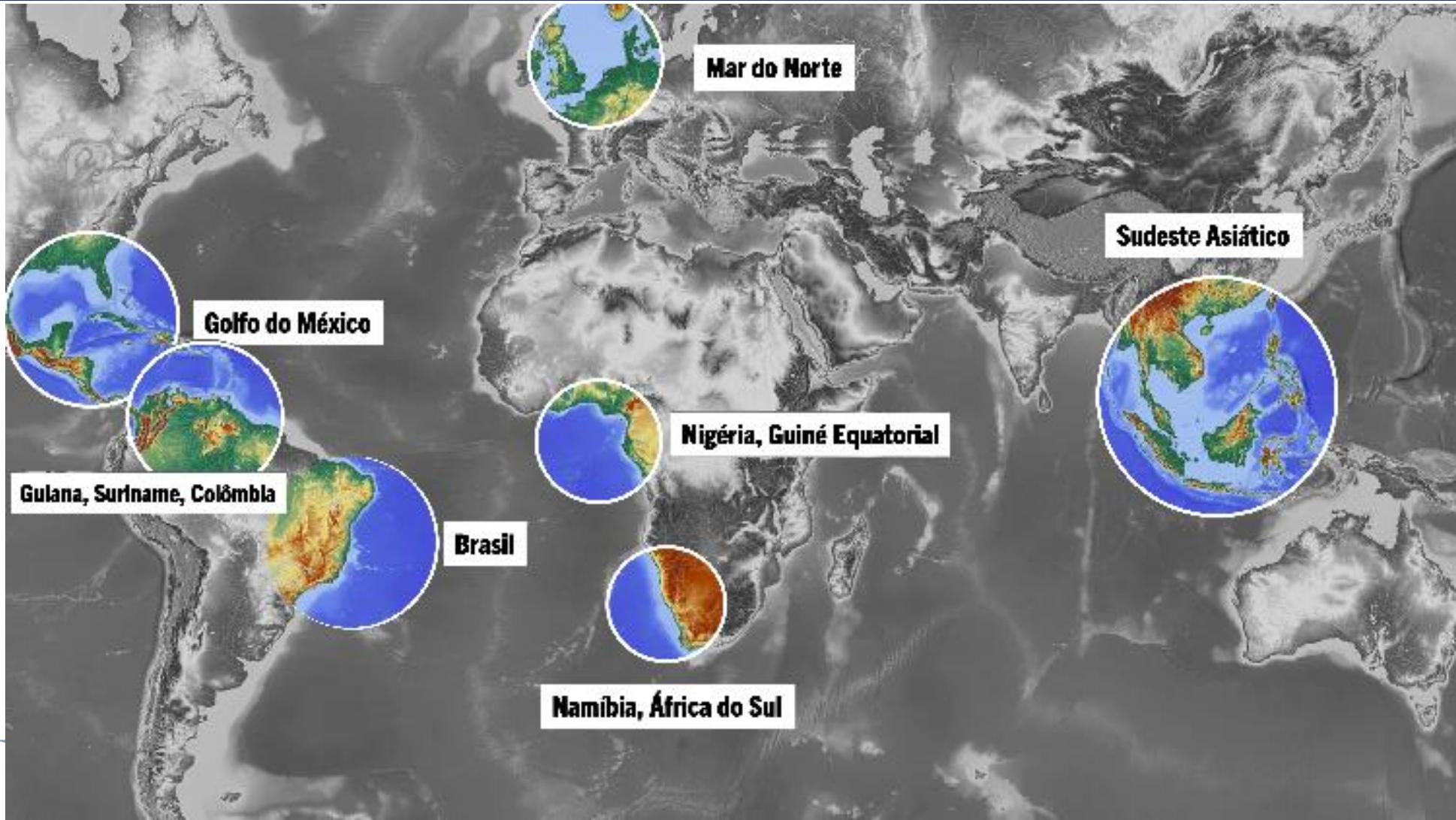


# Ásia

*Mais gente vivendo dentro que fora do círculo*



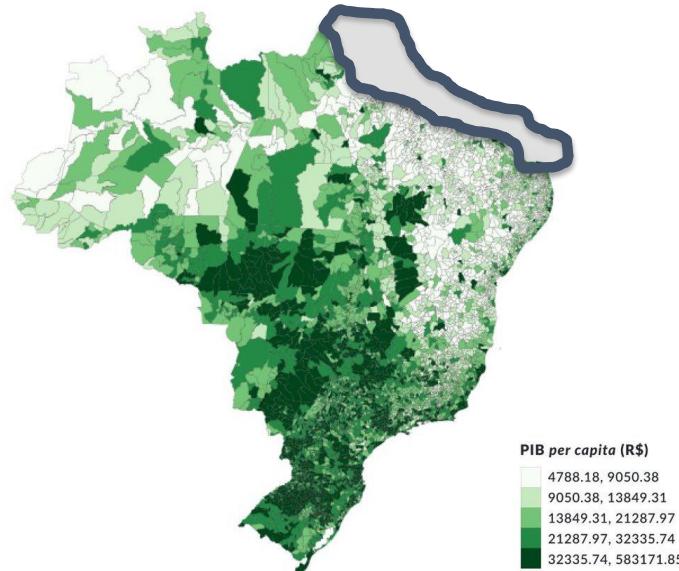
# Atividades petrolíferas pelo mundo



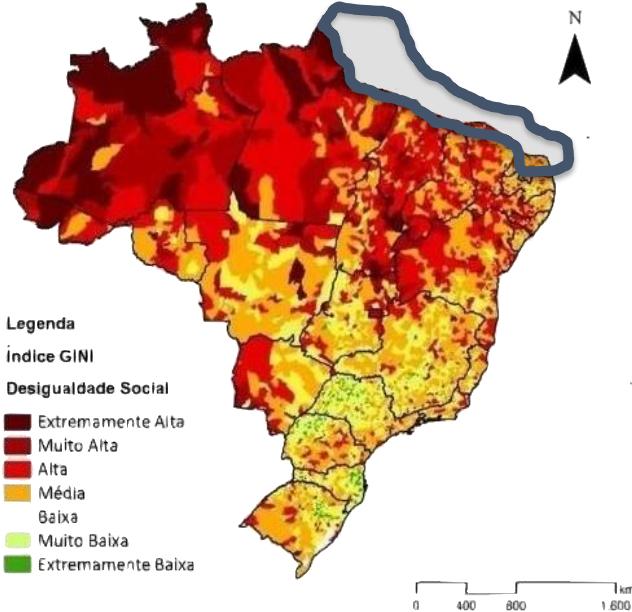
# CENÁRIO BRASIL

# Desigualdade: Indicadores da MEQ

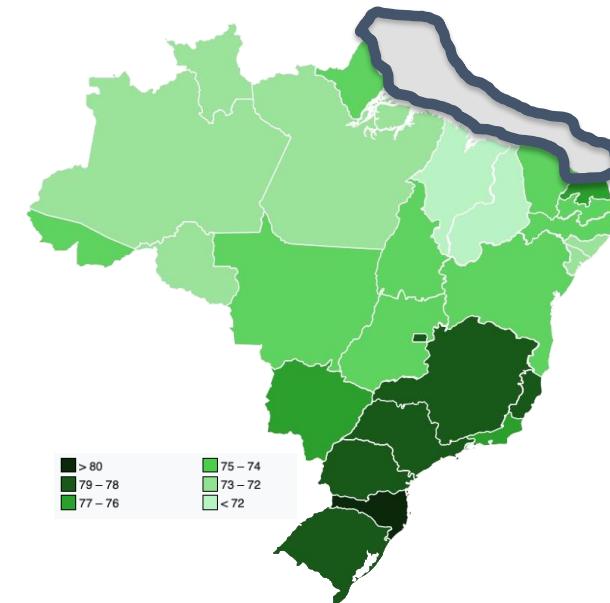
## PIB PER CAPITA



## INDICE GINI



## EXPECTATIVA DE VIDA



# Consumo per capita de energia primária

## Per capita energy from fossil fuels, nuclear and renewables, 2023

Measured in kilowatt-hours of primary energy consumption per person, using the substitution method.

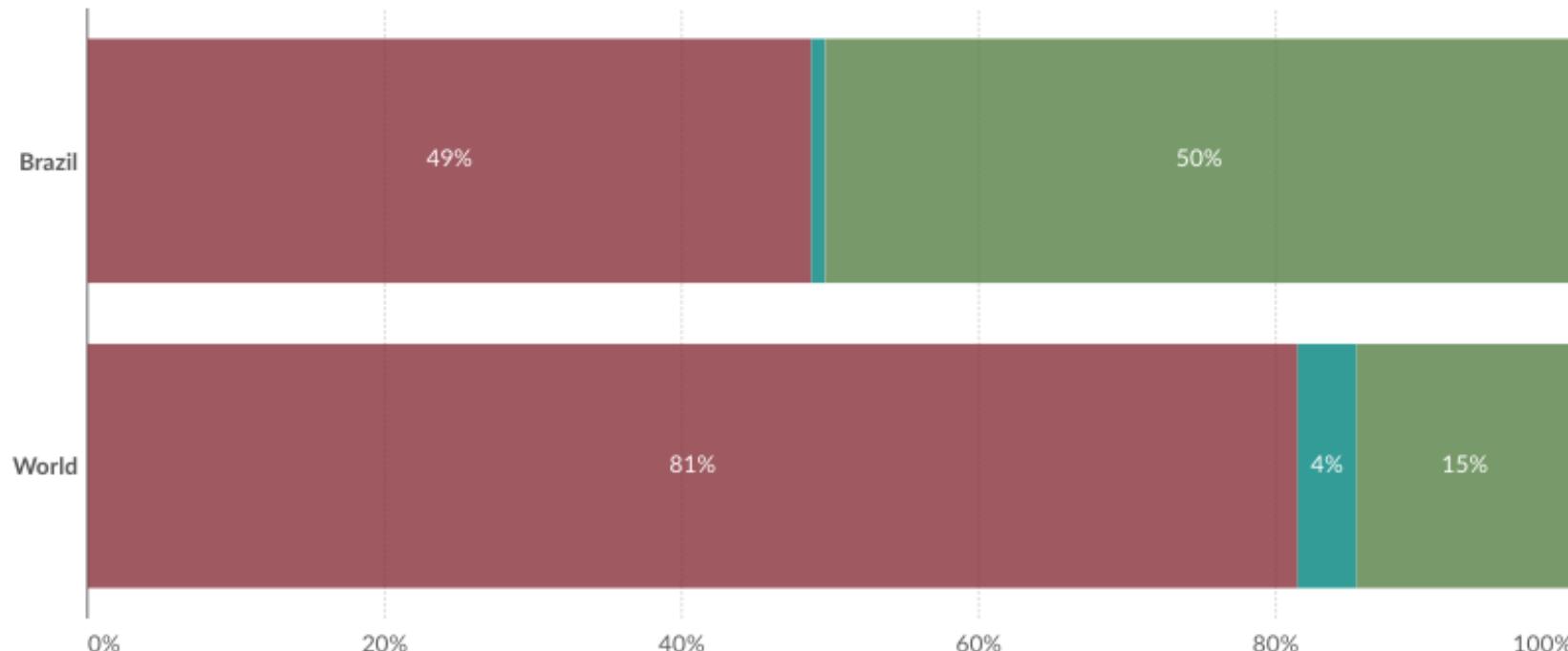
Our World  
in Data

Table Chart

Edit countries and regions

Settings

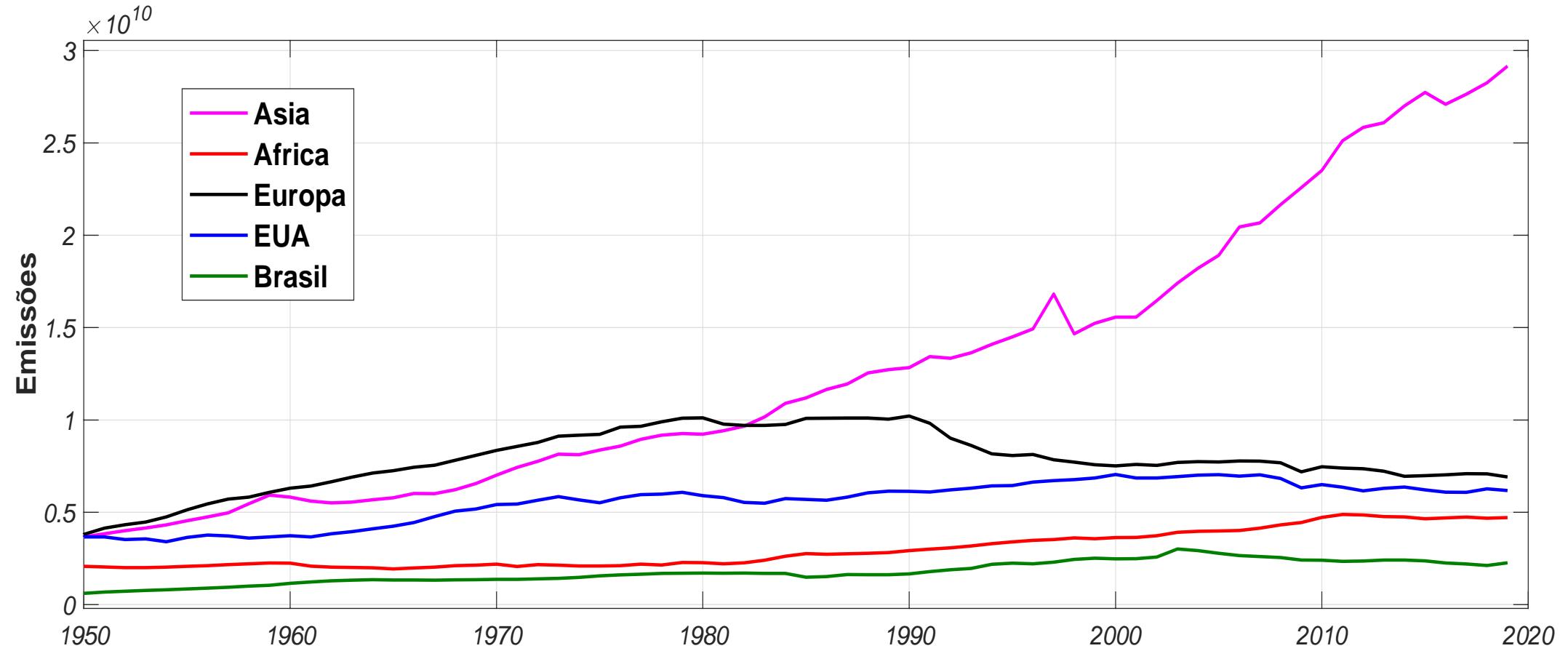
Fossil fuels Nuclear Renewables



Data source: Energy Institute - Statistical Review of World Energy (2024); Population based on various sources (2023) – [Learn more about this data](#)

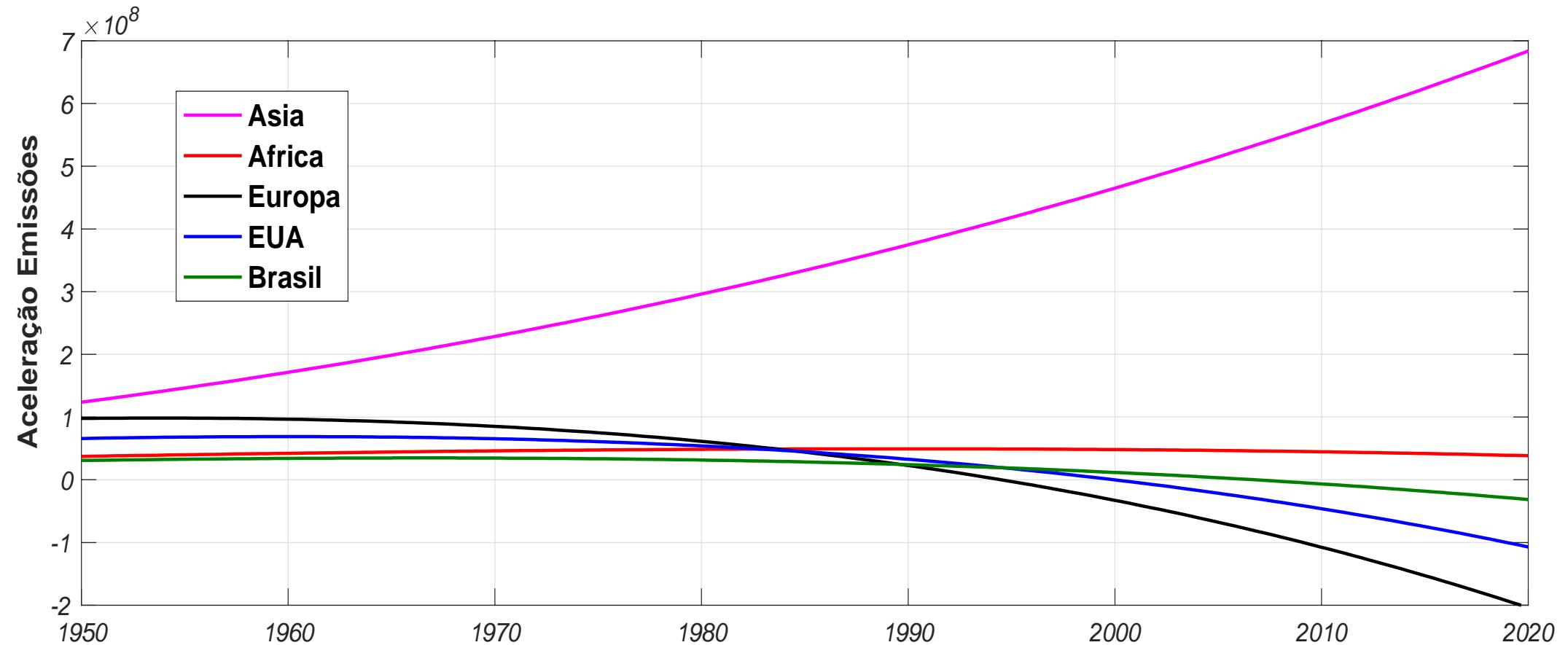
[OurWorldInData.org/energy-mix](http://OurWorldInData.org/energy-mix) | CC BY

# Emissões de Gases de Efeito Estufa



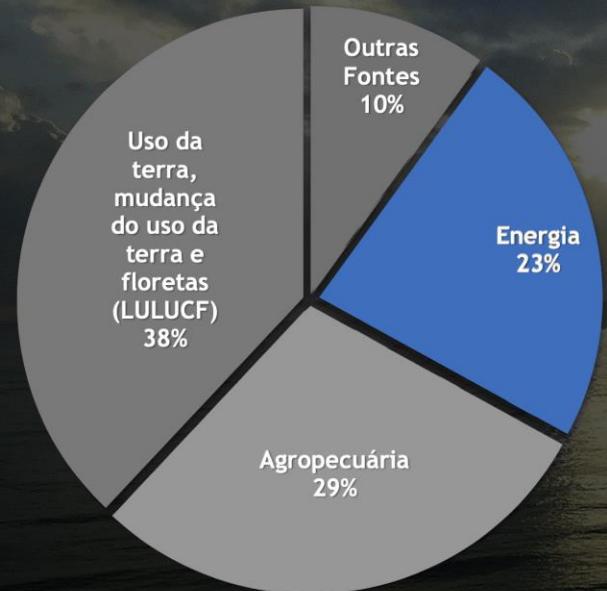
Fonte: Met Office Hadley Centre (HadCRUT5)

# Aceleração das Emissões



# Emissões do Brasil no Mundo

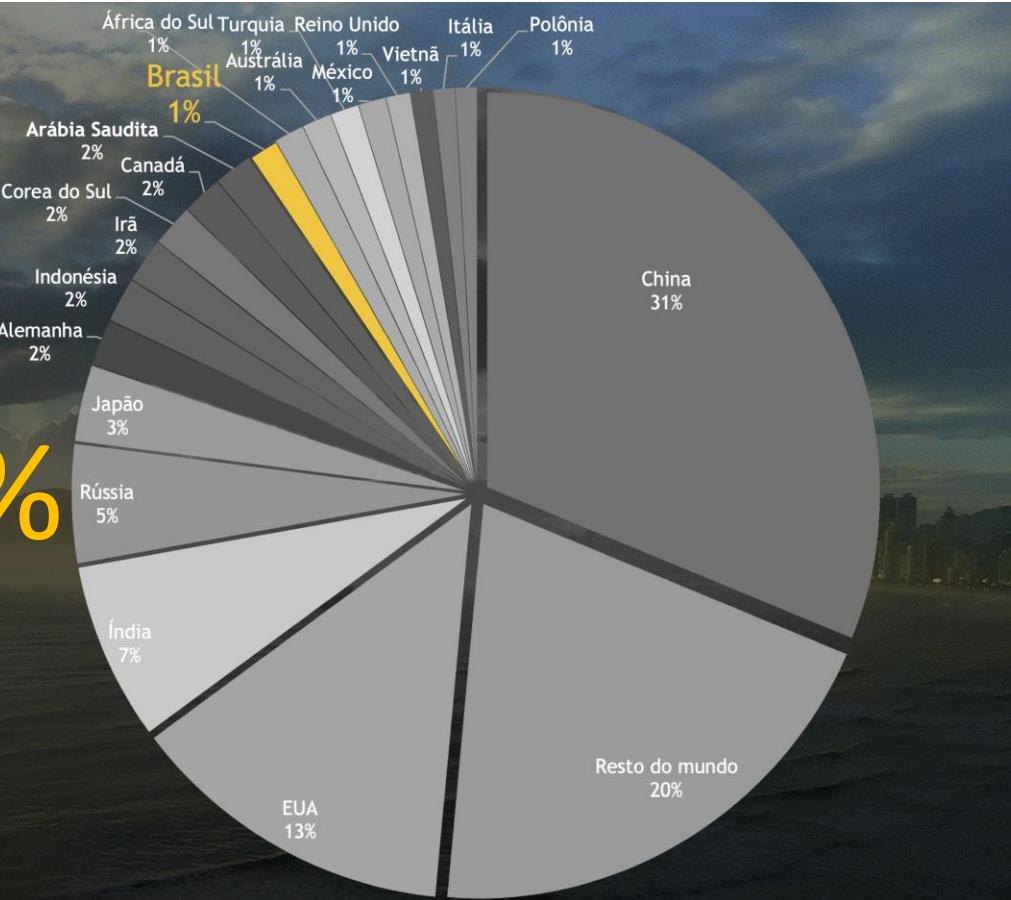
Emissões GEE Brasil, 2020  
Total = 1.676 milhões tCO<sub>2</sub>e



0,23%

WORLD RESOURCES INSTITUTE, 2020; BRASIL MCTI, 2022

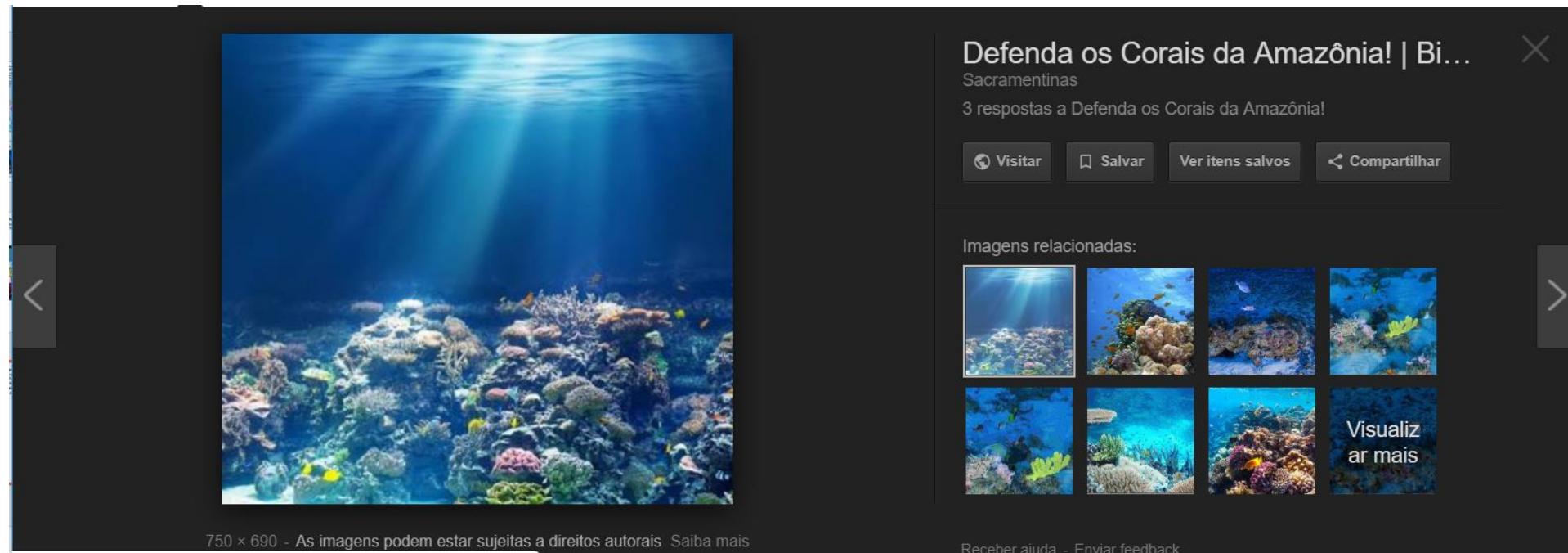
Fonte do slide: Petrobras



Atlas de Energia IEA, 2023

# O debate sobre os corais da Foz do Amazonas

## O que foi divulgado...



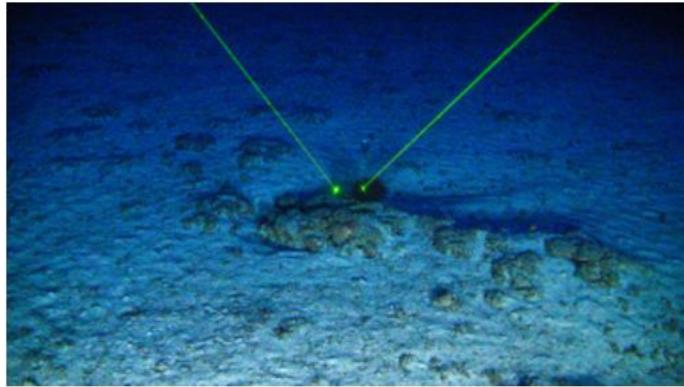
Fonte:

[https://www.google.com.br/search?q=greenpeace+media&tbm=isch&tbs=rimg:Ca2MYwrwaeweljjTuSplU2jmN0ZbS4RrE2TLfJSCwJ8hoKqoFdXK5L\\_15INyCKWU29vIQTIYRp8OWMdSIWmdb4QGsmSoSCdO5KmVTaOY3EU2gMbNvLkg1KhlJRltLhGstZMsRx8pJRQW3VPAqEgl8IILAnyGgqhFYGjjTKCIEsCoSCagV1crkv\\_1mUEY1hwjqCbpWXKhlJ3IlpZTb28hARskBenfAdxDkqEglMhhGnw5Yx1BFjzVnbGus0SyoSCaVaZ1vhAayZEVaVofXVDB2t&tbo=u&sa=X&ved=2ahUKEwjHpvHU25\\_eAhWGkZAKhdDsC9IQ9C96BAgBEBs&biw=1193&bih=547&dpr=1.35#imgrc=4fxMXMlxgDDI4M](https://www.google.com.br/search?q=greenpeace+media&tbm=isch&tbs=rimg:Ca2MYwrwaeweljjTuSplU2jmN0ZbS4RrE2TLfJSCwJ8hoKqoFdXK5L_15INyCKWU29vIQTIYRp8OWMdSIWmdb4QGsmSoSCdO5KmVTaOY3EU2gMbNvLkg1KhlJRltLhGstZMsRx8pJRQW3VPAqEgl8IILAnyGgqhFYGjjTKCIEsCoSCagV1crkv_1mUEY1hwjqCbpWXKhlJ3IlpZTb28hARskBenfAdxDkqEglMhhGnw5Yx1BFjzVnbGus0SyoSCaVaZ1vhAayZEVaVofXVDB2t&tbo=u&sa=X&ved=2ahUKEwjHpvHU25_eAhWGkZAKhdDsC9IQ9C96BAgBEBs&biw=1193&bih=547&dpr=1.35#imgrc=4fxMXMlxgDDI4M)

# O debate sobre os corais da Foz do Amazonas

## A realidade...

Fundo carbonático de algas calcárias  
esparças, esponjas, peixes



4 Feb, 2017  
Amazon Reef  
[Add to lightbox](#)  
[Add to cart](#)



4 Feb, 2017  
Anemone in the Amazon Reef  
[Add to lightbox](#)  
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4 Feb, 2017



4 Feb, 2017

# O debate sobre os corais da Foz do Amazonas

A realidade...

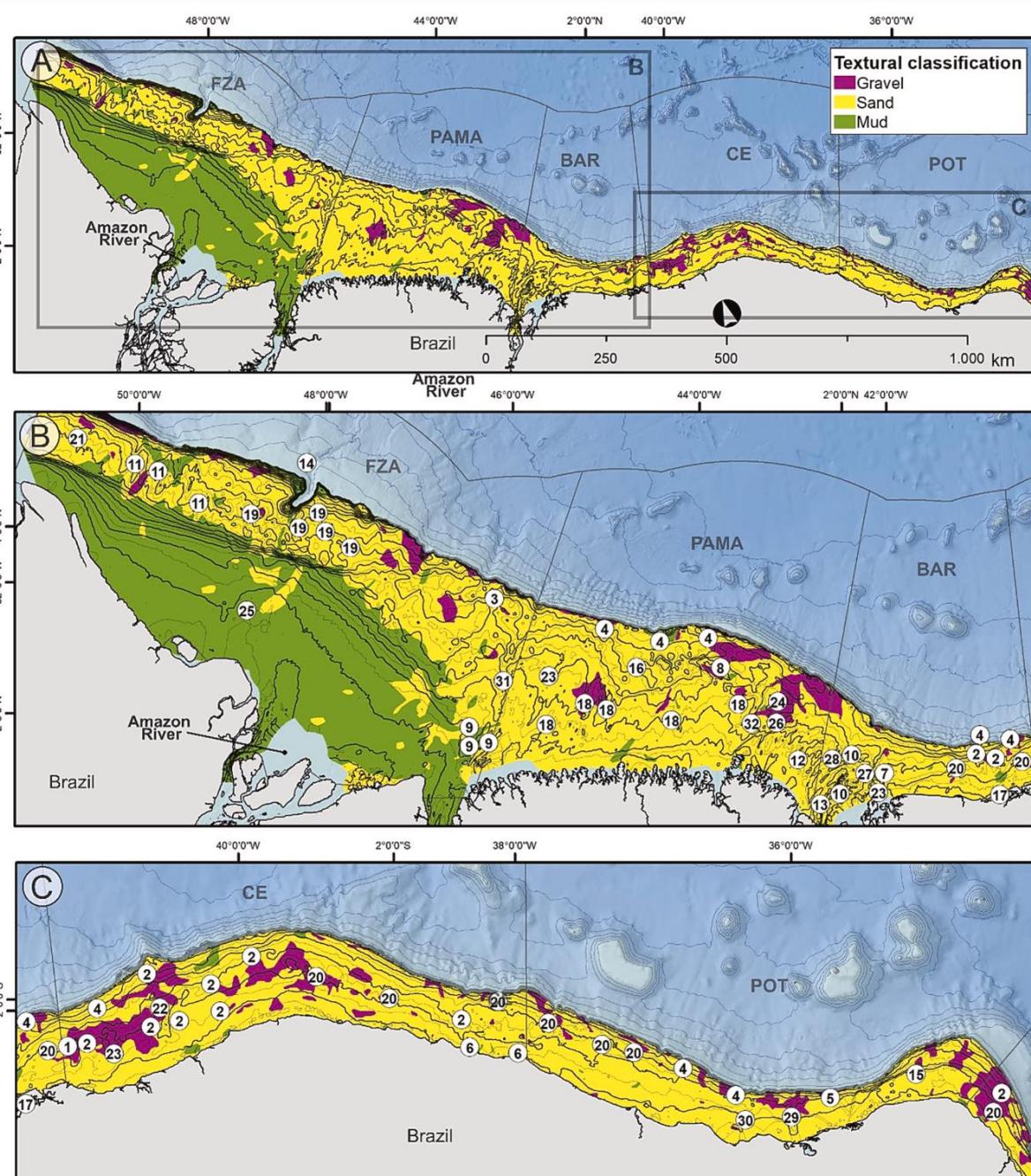
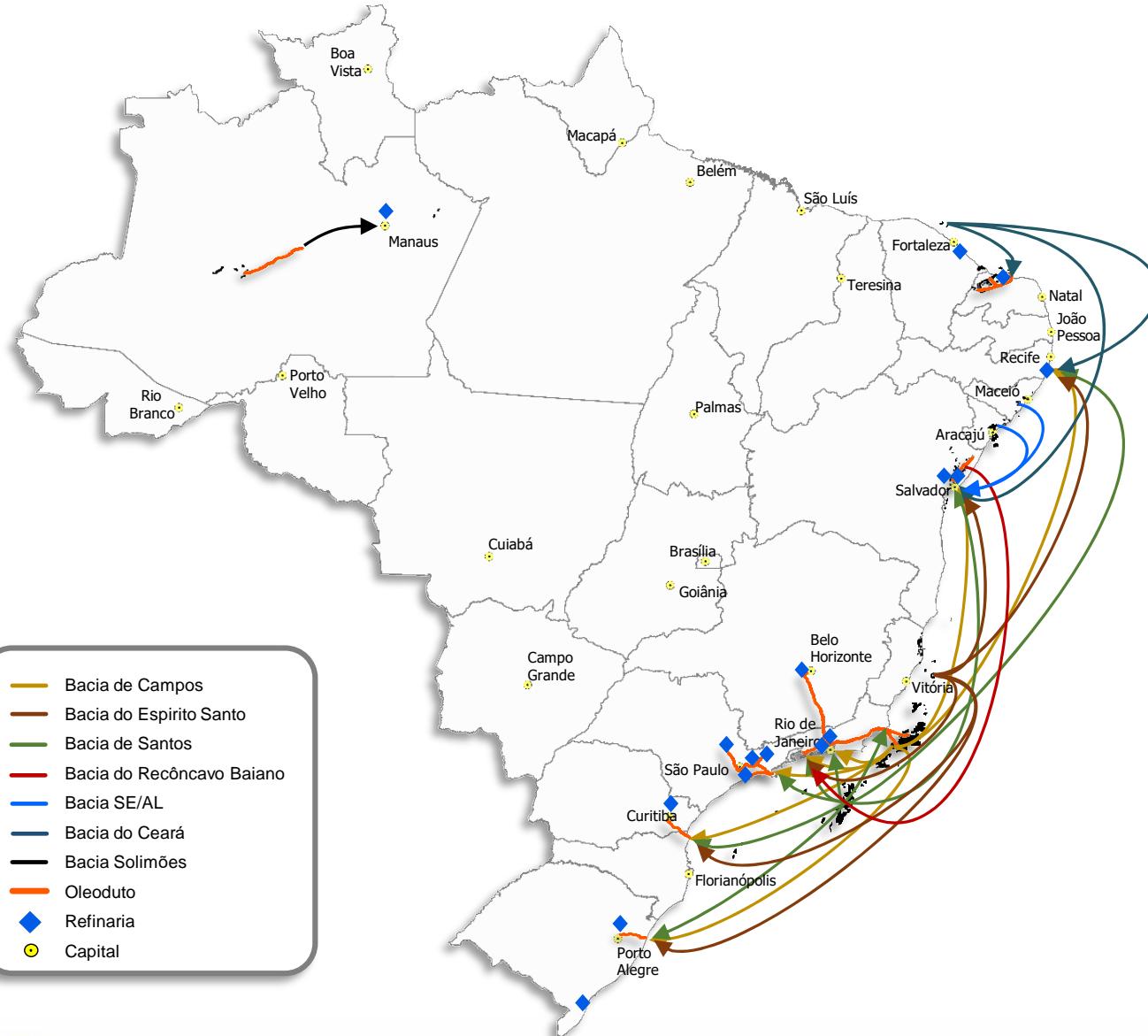


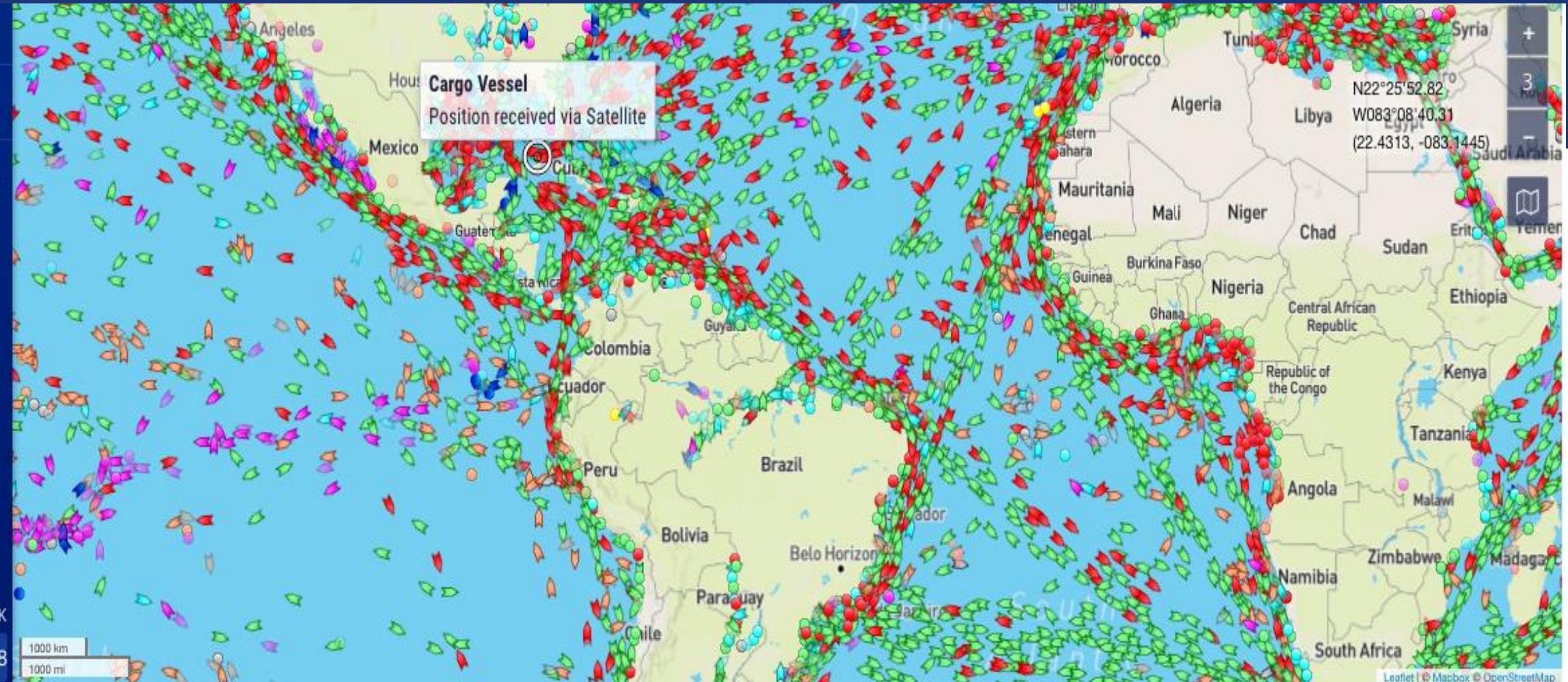
Fig. 5. Grain size classification based on analysis of 5515 surface samples, seabed images, and geomorphological features (A). The shelf is predominantly composed of sand with a high contribution of mud at the Amazon Submarine Delta (B). Gravel is found at isolated spots on the outer shelf and are strongly associated with bioclastics (B and C). Seabed features are listed in Fig. 4.

# Movimentação de Petróleo

Mapa 2: Fluxos de Movimentação Interna de Petróleo por Bacia



# O fluxo de navios no planeta e na Margem Equatorial



# Centro de reabilitação da fauna



**Centro de Reabilitação da Fauna**  
Belém, PA



**R\$ 50 milhões**



# Centro de reabilitação da fauna

**BR PETROBRAS**

**Centro de Reabilitação da Fauna**  
Belém, PA



**R\$ 50 milhões**

# OIAPOQUE: Mais um



R\$ 150 milhões

# E o Maranhão?

- **A História mostra que a mobilização é fundamental!**
- **O Maranhão tem duas bacias: Pará-Maranhão e Barreirinhas;**
- **Lutaremos?**



**VIVA O BRASIL!**