

# Modern technologies and conflict

Energy, climate, resources

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# Climate change

- Extinction is the norm
  - 99% of all species
  - Mostly due to climate change
  - Mostly triggered by volcanism
- Planet will survive, life will survive, humans will survive too
- Geopolitical consequences
  - Lack of water and food
  - Poor adaptation
  - Migration and conflicts
- All countries impacted
- “lifeboat” countries?



# Climate change and conflicts

- Social conflict
- Organized violence



Armed conflicts



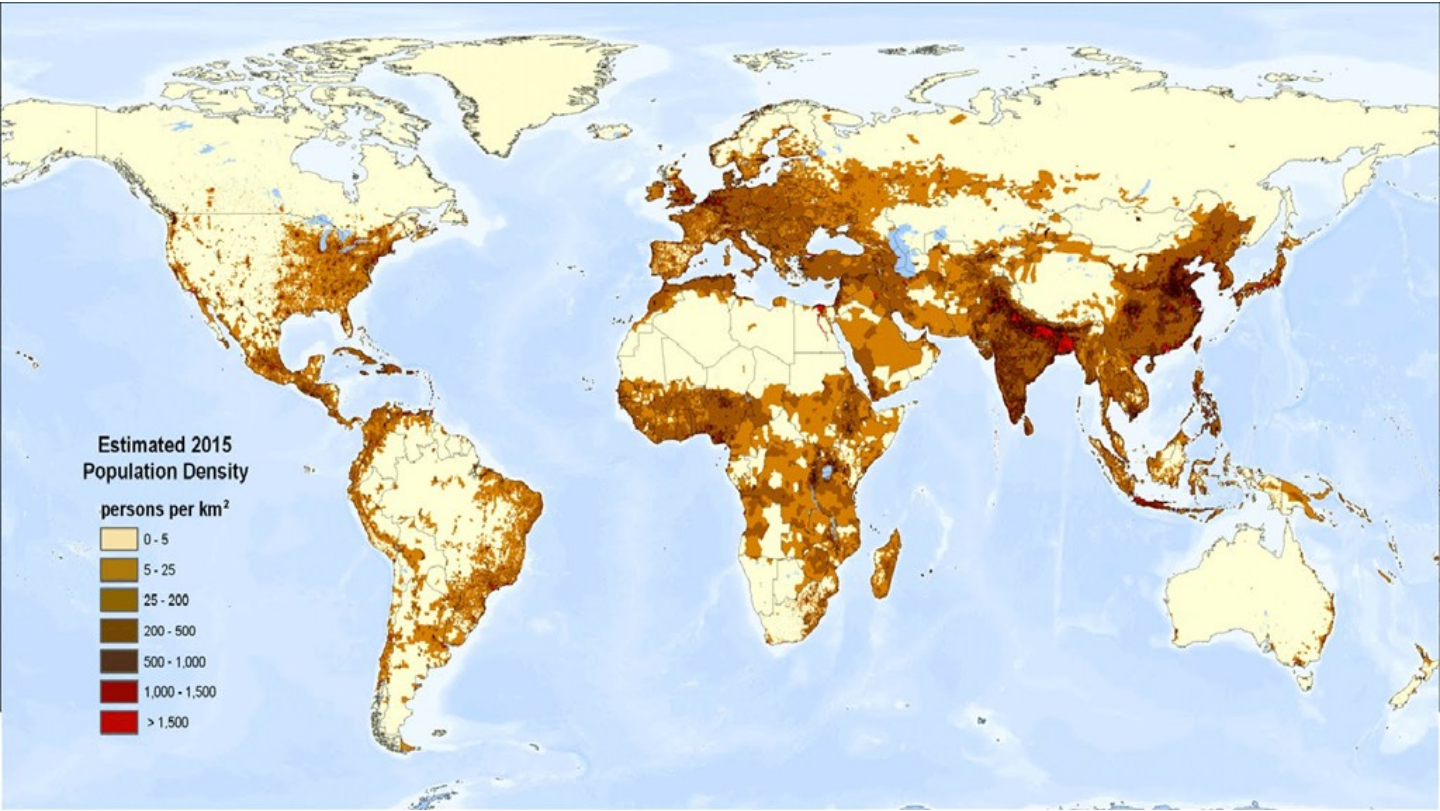
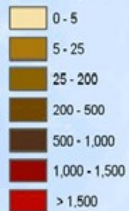






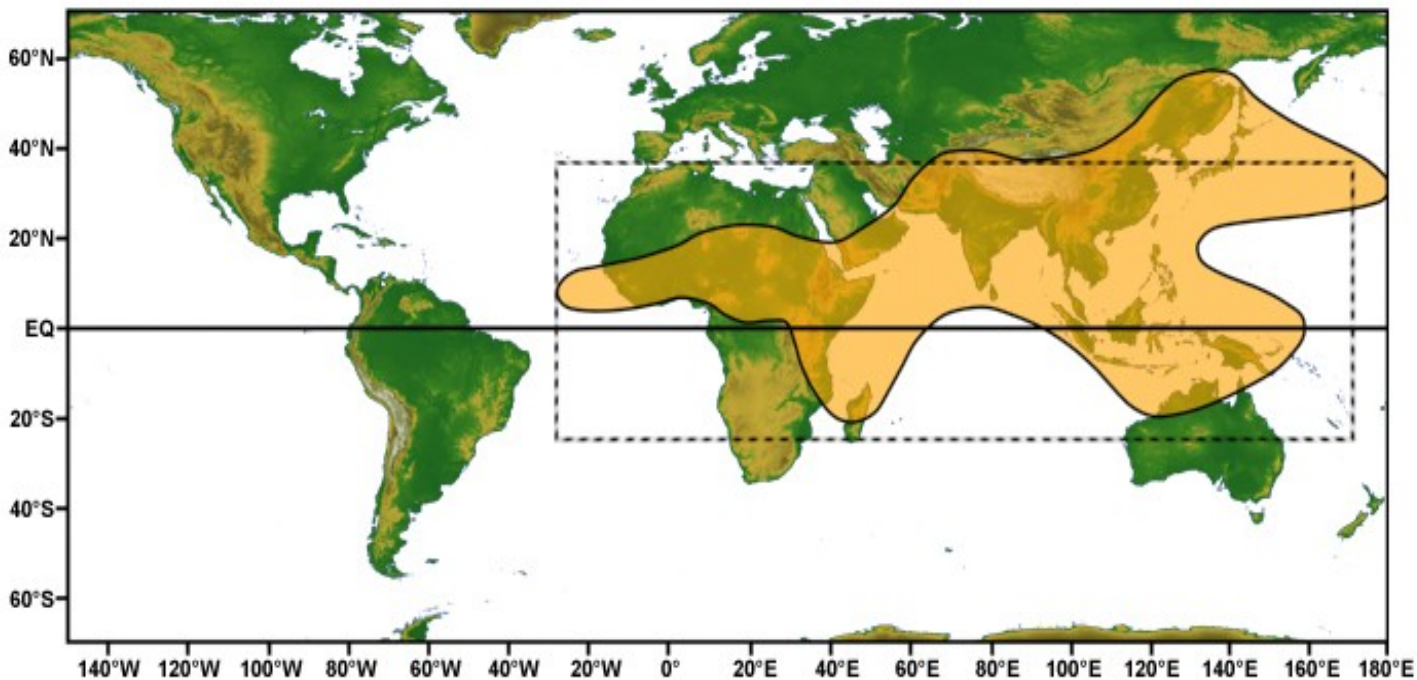
**Estimated 2015  
Population Density**

persons per km<sup>2</sup>





## Classic Monsoon Region



# Mapping the Impacts of Climate Change

Select below

**Extreme Weather**

Direct Risks

Overall Vulnerability

**Sea Level Rise**

Direct Risks

Overall Vulnerability

**Agricultural Productivity Loss**

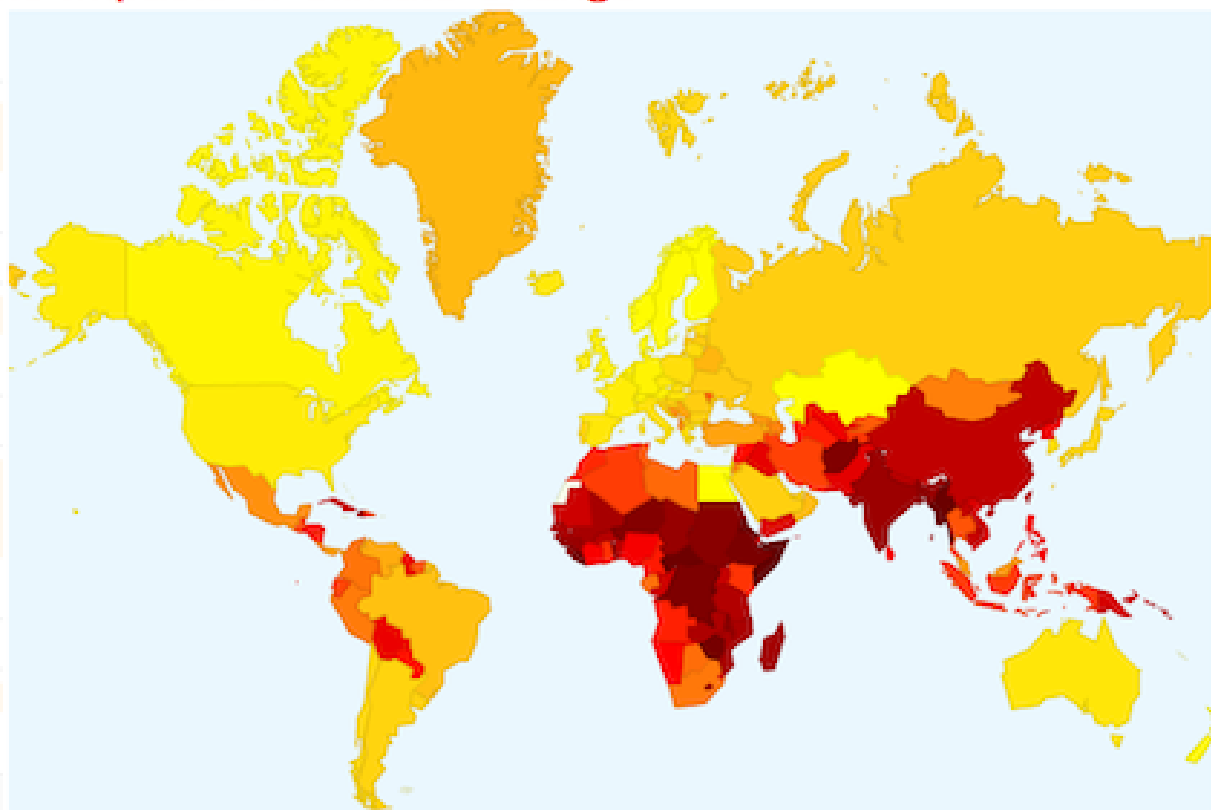
Direct Risks

Overall Vulnerability

**Overall**

Direct Risks

Overall Vulnerability



Rank 1 169

**Overall Overall Vulnerability:**  
Physical Impacts Adjusted For Coping Ability

# Energy sources

- Burning buried sunshine (80%)
- Burning fresh sunshine (10%)
- Heat from sunshine (7%)
- geothermal + nuclear energy (3%)
  
- Issue of energy storage
- Energy consumption is growing and will continue to grow
  
- Nuclear fusion?
- [ITER](#), 2030?, \$20 000 000 000



# Coltan

- Mined for tantalum and niobium, used in electronics (condensators)
- All phones, computers, TVs...
- circa 60% from DRC
  - <https://www.youtube.com/watch?v=fPIB17PE2vM>
- “resource curse”
- (re)source of conflict
- Slavery and civil war
- Environmental impact



# REE mining

- 90% of global production from mines in Baotou, northern China
- cerium, neodymium, yttrium, terbium, scandium, lanthan, dysprosium, ...
- Massive ecological impact
- Geopolitical tool
- Other deposits: DPRK and Afghanistan





- 2006, Indonesia, East Java, **Sidoarjo**
- Natural gas drilling turned into mud volcano
- 180 000 m<sup>3</sup>/day -> 10 000 m<sup>3</sup>/day
- Area 10 km<sup>2</sup>

# Geo-engineering

- umělé a cílené ovlivňování klimatu
  - + nevědomé brždění změn znečištěním
- snaha zbrzdit oteplování a získat čas
- obvykle skrze zvyšování albeda (odrazivost)
  - SRM - Solar Radiation Management
- rozprašování látek v atmosféře, stavební úpravy
- riziko závislost a jednostranných akcí
- nebo “carbon capture”
- technický/organický

