GREEN TRANSITION

BRIEF WRAP-UP

BLOCK I. - Green Transition – Origin, Drivers and Frameworks

Lecture 1: Origin of green transition, key drivers, policies and implications in international and European context (Rastislav Vrbensky)

Lecture 2: Green Transition in European Union context/ European Green Deal (Filip Cernoch)

Outline:

- Introduction to the course, its structure, ways of working and expected outcomes
- Growth and nature, degrowth and green growth theories
- Origin of green transition, key drivers, policies and implications
- Green transition approach worldwide
- Introduction to EU Green Deal - its origin, structure, expected outcomes, strengths/ weaknesses
- Fit for 55 Package and NextGeneration EU
- Practical implication of EU Green Deal on country level

BLOCK II. - Innovation and Leadership/ Management Aspects of Green Transition –

Lecture 3: Innovation and new technologies for green transition (Oldrich Sklenar)
Lecture 4: Leadership, management and communication/ media aspects of green transition (Oldrich Sklenar)

Outline:

- Definition, classification and typology of innovations
- Innovation potential and factors determining successful innovation
- Practical examples of both technical and non-technical innovations
- Basic introduction to SMART Goals method and practical examples
- Specifics of the green transition from a political, economic, informational and psychological point of view

BLOCK IV. - Greening of Public and Private Finance

Lecture 7: Climate Finance - Public Sector (Alexandra Novikova, Marina Olshanska)

Outline:

- Evolving climate finance landscape: definitions, instruments, sources
- The role of “additionality” in climate finance
- Overview of financing needs and sources
- International climate finance

Lecture 8: Climate Finance - Private Sector (Alexandra Novikova, Marina Olshanska)

Outline:

- Role of financial sector in decarbonization
- GHG accounting and reporting standards for financial sector (PCA)
- Understanding banks’ carbon footprint (group exercise)

Block V. - Just Transition and Green Transition from the Perspective of Governments and Businesses

Lecture 9: Just transition in European and international context (Filip Cernoch, Rastislav Vrbensky)

Outline:

- Climate and development: why do we need a Just Transition
- International definitions and approaches to Just Transition
- Overview of Just Transition challenges and policies in EU and worldwide
- Financing Just Transition: the role of MDBs
- Enabling Just Transition - experience from selected countries

Lecture 10: Green transition from the perspective of Government and private sector (Igor Luksic)

Outline:

- The key aspects of the Paris Agreement in the context of the question can we do it?
- Examples of what governments do and on what goals they focus (Montenegro)
- 10 principles used by the corporate sector
- ESG - the contribution of the private/corporate sector
- Potential unintended consequences of the SDG/decarbobization agenda

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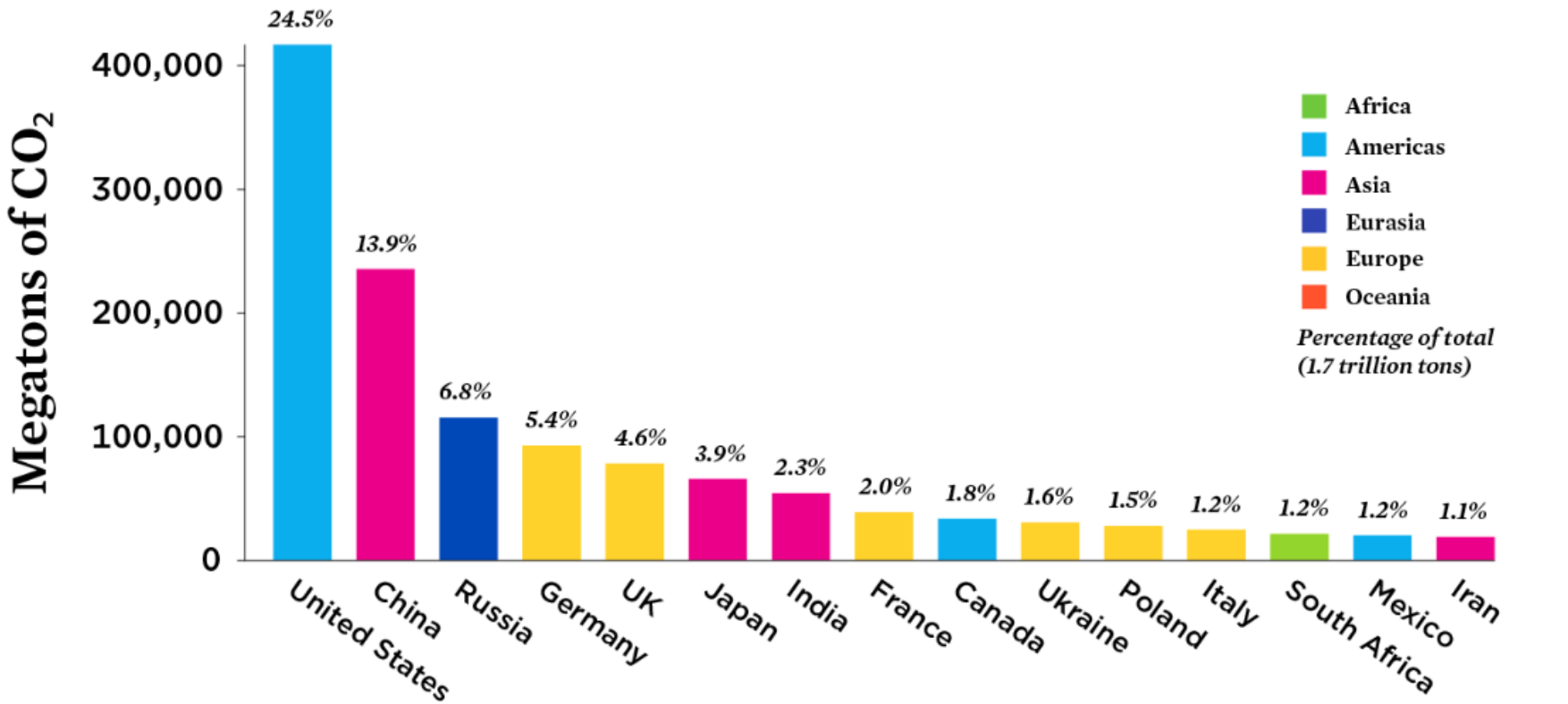
HISTORICAL EMISSION – COMMON BUT DIFFERENTIATED RESPONSIBILITIES

- Responsibility for human-caused climate change is distributed unevenly – most **historical emissions** have been from the richest countries that have the most resources and capacity to adapt to rising temperatures.

Top CO_2 Emitting Countries, 1750-2020

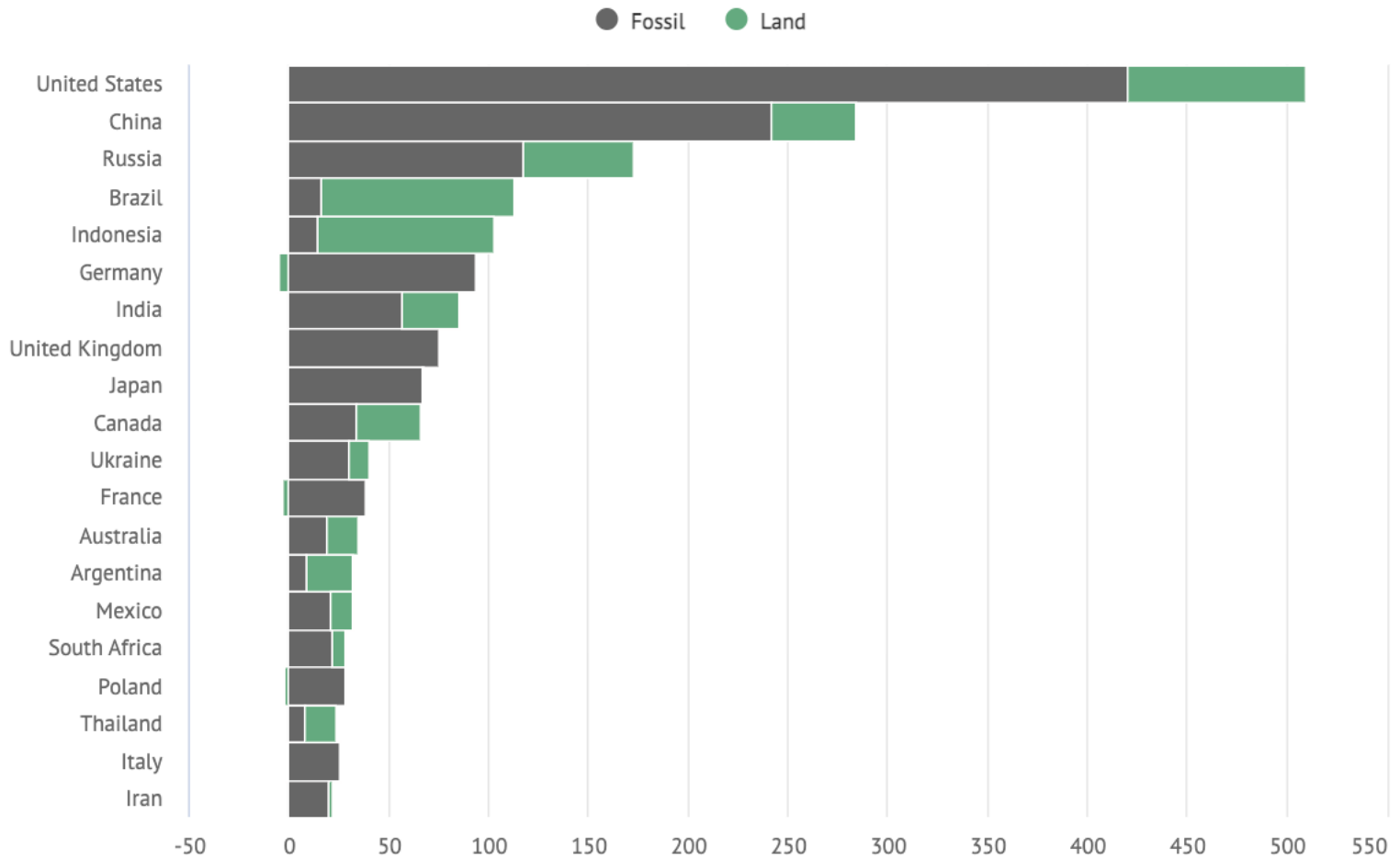
(from fossil fuels and cement)



Data: Global Carbon Project via Our World in Data

The countries with the largest cumulative emissions 1850-2021

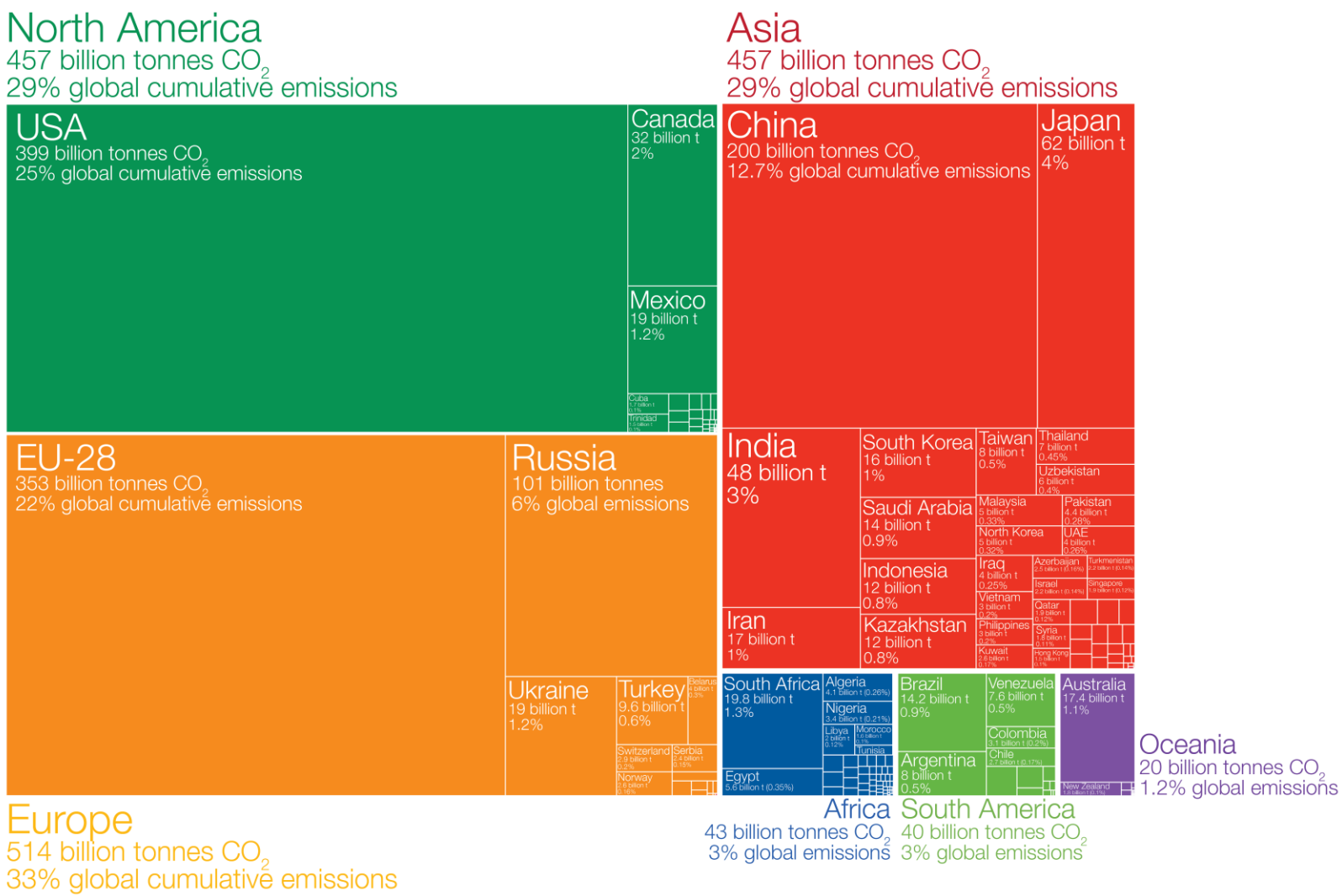
Billions of tonnes of CO2 from fossil fuels, cement, land use and forestry



Who has contributed most to global CO_2 emissions?

Our World in Data

Cumulative carbon dioxide (CO_2) emissions over the period from 1751 to 2017. Figures are based on production-based emissions which measure CO_2 produced domestically from fossil fuel combustion and cement, and do not correct for emissions embedded in trade (i.e. consumption-based). Emissions from international travel are not included.

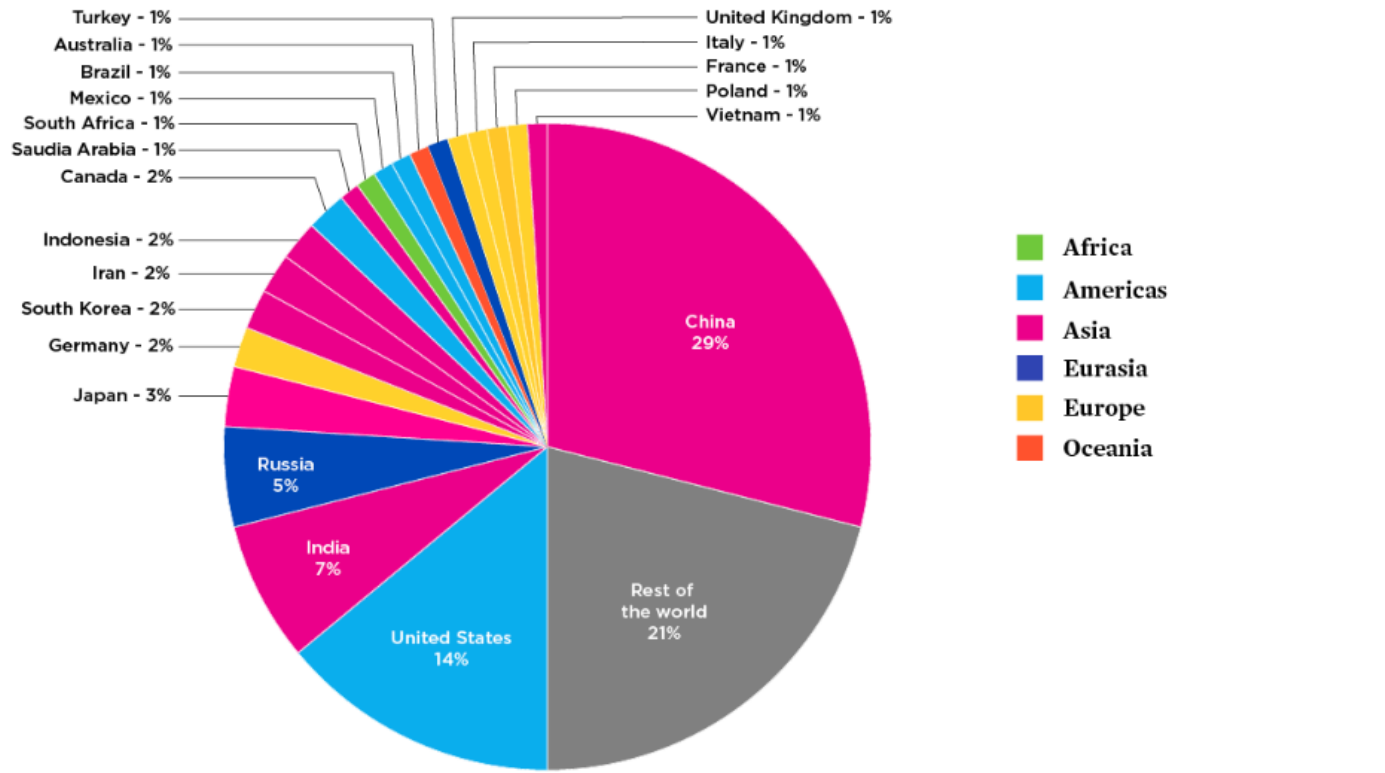


Figures for the 28 countries in the European Union have been grouped as the 'EU-28' since international targets and negotiations are typically set as a collaborative target between EU countries. Values may not sum to 100% due to rounding.

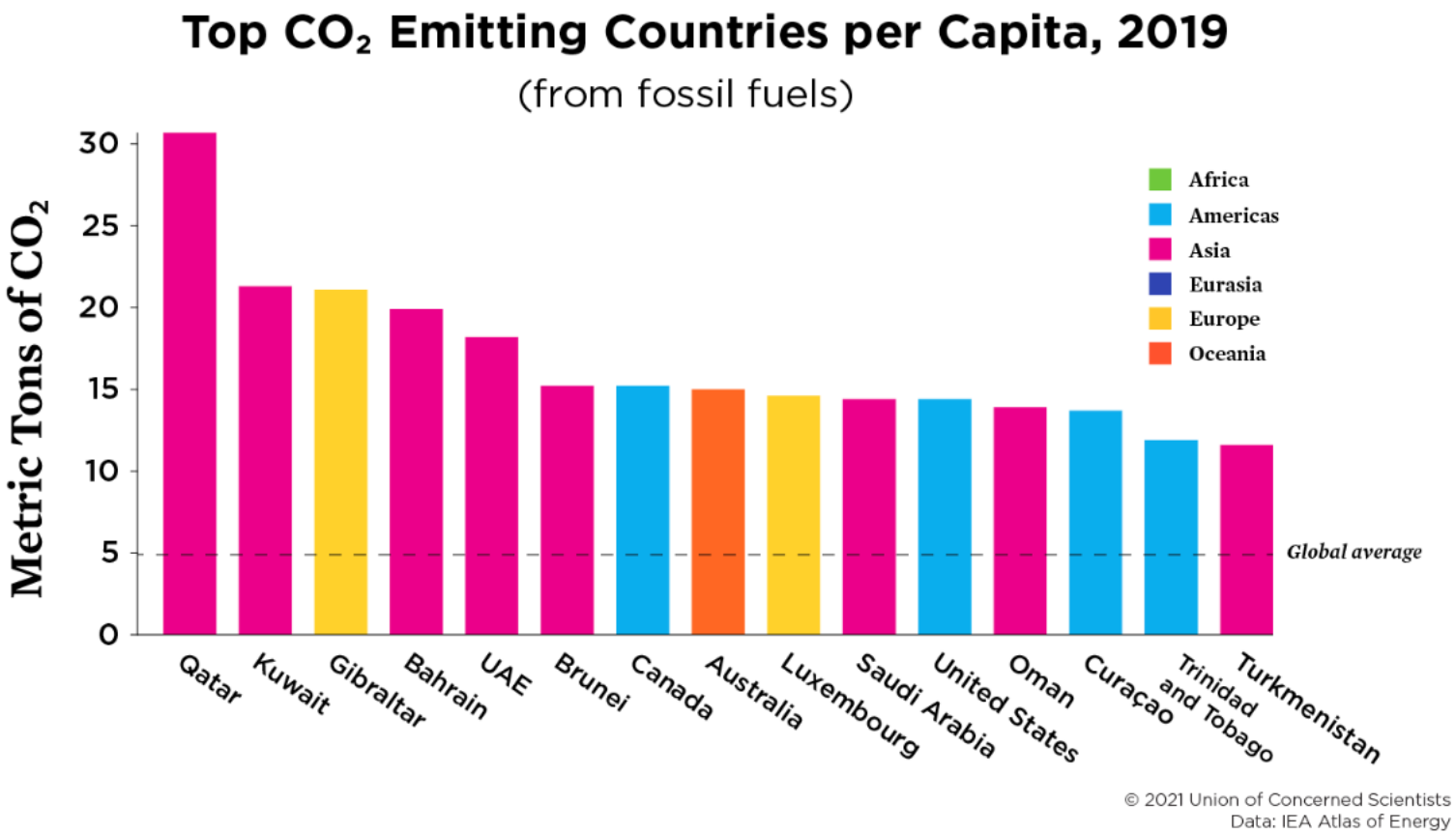
Data source: Calculated by Our World in Data based on data from the Global Carbon Project (GCP) and Carbon Dioxide Analysis Center (CDIAC).
This is a visualization from OurWorldinData.org, where you find data and research on how the world is changing.

Top Annual CO_2 Emitting countries, 2019

(from fossil fuels)



Data: IEA Atlas of Energy


Top CO_2 Emitting Countries per Capita, 2019
(from fossil fuels)
Metric Tons of CO_2
30
25
20
15
10
5
0
Africa
Americas
Asia
Eurasia
Europe
Oceania
Global average
Qatar
Kuwait
Gibraltar
Bahrain
UAE
Brunei
Canada
Australia
Luxembourg
Saudi Arabia
United States
Oman
Curaçao
Trinidad and Tobago
Turkmenistan
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Data: IEA Atlas of Energy

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VULNERABILITY AND CLIMATE JUSTICE

Multidimensional inequalities and climate change

- Differences in vulnerability and exposure arise from **non-climatic factors** and from **multidimensional inequalities**…These differences shape differential risks from climate change.
- **People who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable** to climate change and also to some adaptation and mitigation responses.
- This heightened **vulnerability is rarely due to a single cause**. Rather, it is the product of intersecting social pressures that result in inequalities in socioeconomic status and income, as well as in exposure. Such social processes include, for example, **discrimination on the basis of gender, class, ethnicity, age and (dis)ability.**

IPCC Fifth Assessment Report

- Even within the same country or city, people with **less privilege in society** – whether due to their ethnicity, gender or other factors – are likely to be worst affected by climate change.
- The logic also applies on an **intergenerational basis:** young people and future generations have contributed least to rising temperatures but will **suffer most** from extreme outcomes over the course of this century.
- Building on these facts, the concept of **'climate justice'** places **an ethical challenge** at the heart of the argument for climate action. It identifies climate change as a symptom of unfair and unrepresentative economic, social and political institutions.

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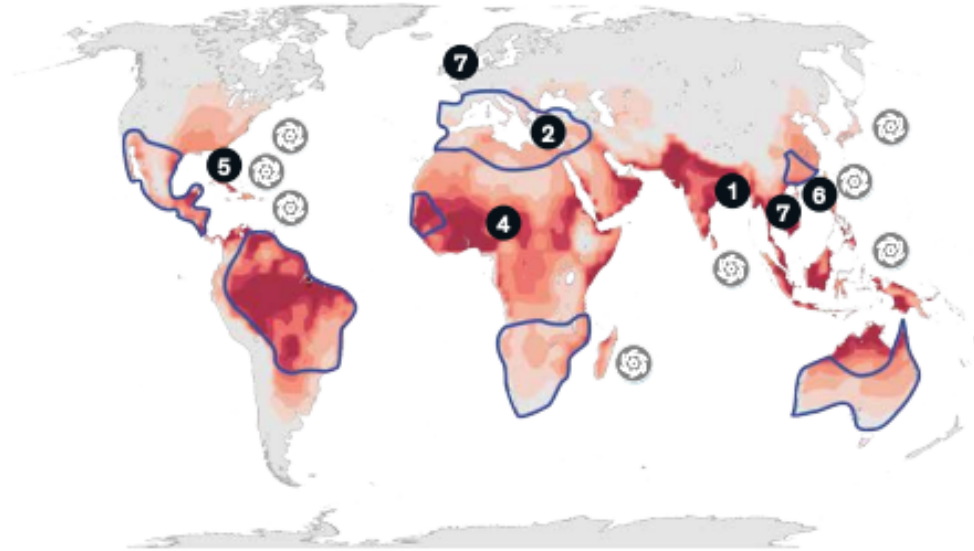
POOR COUNTRIES ON RECEIVING END

Exhibit 8

We have selected nine case studies of leading-edge climate change impacts across all major geographies, sectors, and affected systems.



Global case studies 3 8 9

Heat stress[1] Low — High | Highest drought risk in 2060[2] | Increase in hurricane/cyclone severity

Livability and workability	1	Will India get too hot to work?
	2	A Mediterranean basin without a Mediterranean climate?
Food systems	3	Will the world's breadbaskets become less reliable?
	4	How will African farmers adjust to changing patterns of precipitation?
Physical assets	5	Will mortgages and markets stay afloat in Florida?
	6	Could climate become the weak link in your supply chain?
Infrastructure services	7	Can coastal cities turn the tide on rising flood risk?
	8	Will infrastructure bend or break under climate stress?
Natural capital	9	Reduced dividends on natural capital?

1. Heat stress measured in wet-bulb temperatures.
2. Drought risk defined based on time in drought according to Palmer Drought Severity Index (PDSI).

Source: Woods Hole Research Center; McKinsey Global Institute analysis

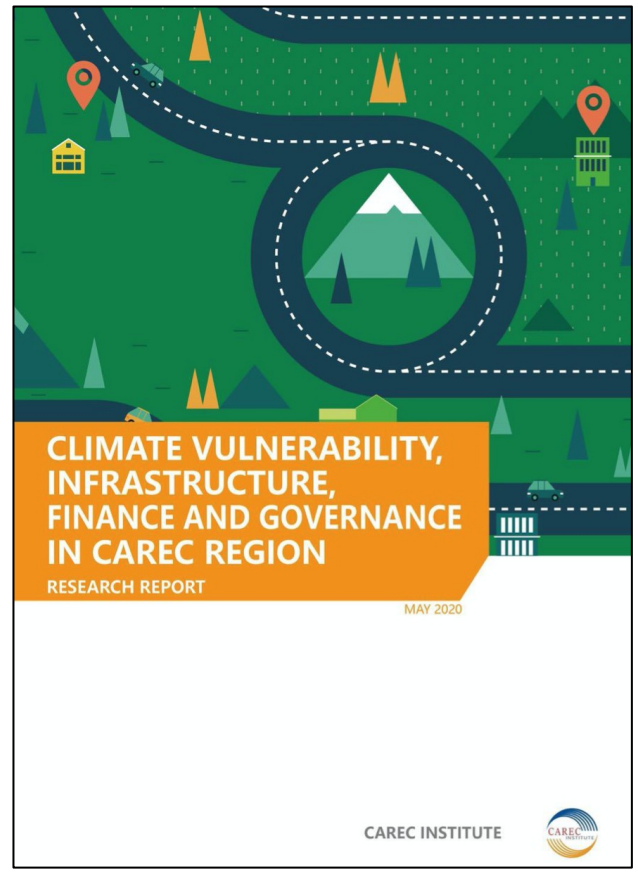
Table 2: The Long-Term Climate Risk Index (CRI): The 10 countries most affected from 1999 to 2018 (annual averages)

CRI 1999-2018 (1998-2017)	Country	CRI score	Death toll	Deaths per 100 000 inhabitants	Total losses in million US$ PPP	Losses per unit GDP in %	Number of events (total 1999–2018)
1 (1)	Puerto Rico	6.67	149.90	4.09	4 567.06	3.76	2
2 (3)	Myanmar	10.33	7 052.40	14.29	1 630.06	0.83	5
3 (4)	Haiti	13.83	274.15	2.81	388.93	2.38	7
4 (5)	Philippines	17.67	869.80	0.96	3 118.68	0.57	31
5 (8)	Pakistan	28.83	499.45	0.30	3 792.52	0.53	15
6 (9)	Vietnam	29.83	285.80	0.33	2 018.77	0.47	22
7 (7)	Bangladesh	30.00	577.45	0.39	1 686.33	0.41	19
8 (13)	Thailand	31.00	140.00	0.21	7 764.06	0.87	14
9 (11)	Nepal	31.50	228.00	0.87	225.86	0.40	18
10 (10)	Dominica	32.33	3.35	4.72	133.02	20.80	

Global Climate Risk Index

Estimated water sector climate Vulnerability index for CAREC countries

Country	Exposure	Sensitity	Adaptive capacity	Vulnerability Index
Afghanistan	1.20	0.48	0.1	4.1
Uzbekistan	1.20	0.87	0.3	3.7
Turkmenistan	1.20	0.90	0.3	3.5
Pakistan	1.00	0.72	0.3	2.7
Azerbaijan	1.40	0.40	0.6	1.0
Tajikistan	1.00	0.31	0.4	0.9
Kyrgyzstan	1.00	0.22	0.5	0.5
Kazakhstan	1.00	0.21	0.8	0.3
China	1.00	0.14	0.8	0.2
Georgia	1.40	0.06	0.8	0.1
Mongolia	0.83	0.04	0.4	0.1



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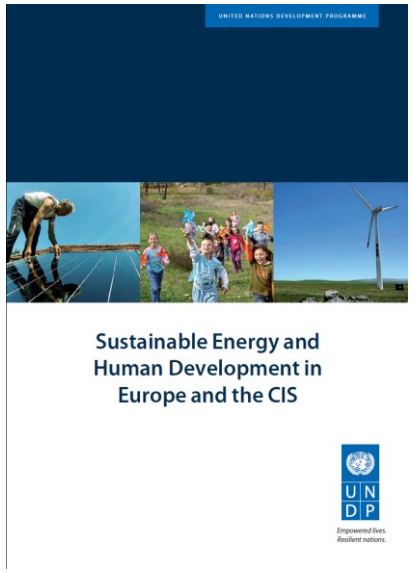
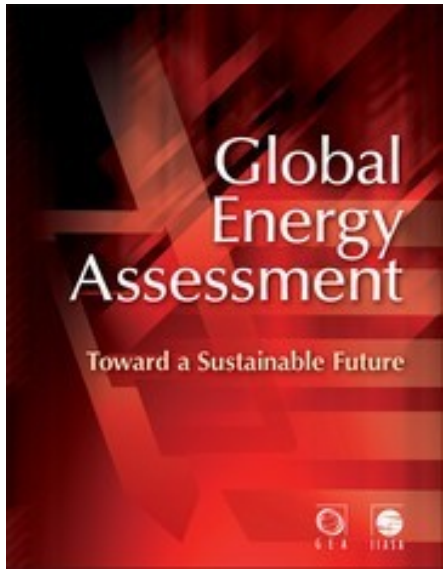
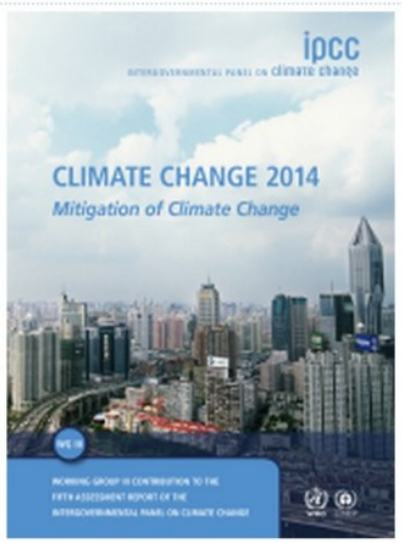
VULNERABLE GROUPS/ GENDER ASPECT

Climate change has a woman's face

- **Women and children are most impacted by indoor air pollution**
  - Traditional cook stoves result in higher indoor air pollution and respiratory diseases of women and children (USAID 2019)
- **Women and children are most affected by low quality energy services**
  - Unheated outside toilets at homes and at work (UNDP Kyrgyzstan 2011)
  - Intermitting and partial heating in homes, hospitals, schools, kindergartens – all traditional women's working places
- **Climate related health impacts affect productivity of women**
  - Women are the main care givers for children and ill family members
  - This result in losing income and female poverty







Gender differences in mitigation

Energy:

- Fewer women (than men) in the energy sector employment
- Most often men decide what type of energy will be used to heat the home and what appliances are bought
- Women are more willing to sacrifice their time to perform home duties that would reduce energy costs

Agriculture:

- Fewer women own land
- Women are most often work as unpaid workers on family farms
- Paid or unpaid workers on other farms and agricultural enterprises

Transport:

- Women use transport to access work and take care of their home and family
- Men mostly use cars, while women use public transport as a means of transportation
- Women are more interested in environmental mobility models (walking, cycling)

Education (STEM):

- Science has traditionally been a men-dominated area
- Social and cultural norms associated with the traditional role of women in the society constitute an obstacle for greater achievement of women in science

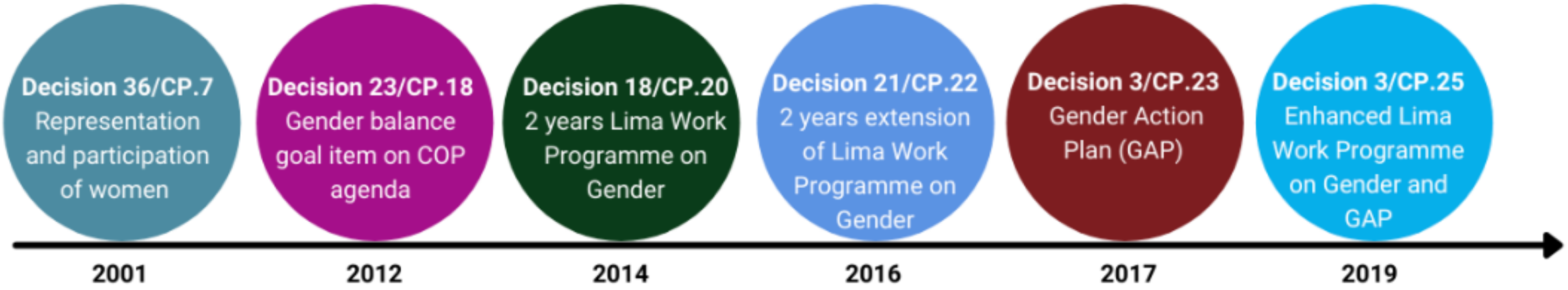
Gender differences in adaptation

- **Forestry:** Male members of households experience a decrease in availability of timber, fish and bushmeat or income-earning abilities - forced labor migration and female-headed households
- **Water management:** Changes in hydrological regimes multiply the burden of women's water collection and management responsibilities in developing regions
- **Public health:** Climate change produces conditions, including flooding and high temperatures, that promote the spread of diseases such as malaria which is felt most acutely by poor, marginalized, and rural young women.
- Pregnant women are four times more likely to suffer from attacks of malaria than other adults.
- **Heat waves:** Women, the poor, and the elderly are vulnerable during heat waves due to their lack of access to cooling
- **Poor building design** and materials increases exposure of occupants to climate shocks like high temperatures during the day, when women and the elderly are working at home
- Pregnant women are at risk because their bodies' compromised ability to thermoregulate

Gender in the Paris Agreement

- Gender is referenced in the Preamble, Article 7 (Adaptation) and Article 11 (Capacity Building) of the Paris Agreement
- But not mentioned in Articles 4, 5 and 6 (Mitigation), Article 9 (Finance) or Article 10 (Technology) of the Paris Agreement
- Not referencing gender in a balanced way or gender blindness in the implementation process may reinforce existing gender inequalities, roles and relations, and may perpetuate inequality between men and women
- Gender-responsive approaches are required to ensure equitable and effective adaptation and mitigation

Gender & Climate Roadmap



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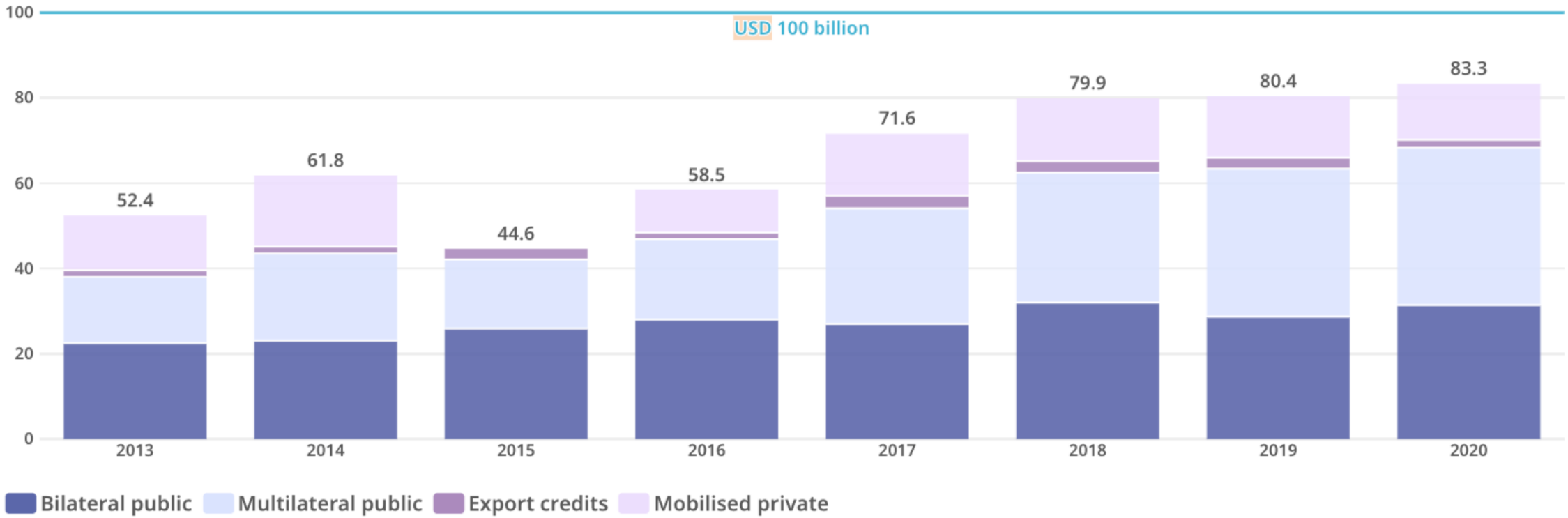
UNPROPORTIONATE RESPONSE AND FUNDING

Climate finance for developing countries

Climate finance provided and mobilised by developed countries, in USD billions



Note: The gap in the private finance series in 2015 is due to the implementation of enhanced measurement methodologies. As a result, private flows for 2015-18 cannot be directly compared with private flows for 2013-14.

Source: OECD (2022), Aggregate Trends of Climate Finance Provided and Mobilised by Developed Countries in 2013-2020.

Destination region of climate finance, by public/private and mitigation/adaptation & dual benefit splits (USD billion, 2017/2018 annual average)

Source: Climate Policy Initiative

The concept of a **just transition** is related to climate justice. It refers to ensuring that environmental transitions, typically at the level of a country, region or sector (e.g. phasing out coal mining), involve processes and outcomes that:

- promote socioeconomic fairness,
- minimise the harm to affected people and communities,
- and ensure the benefits of change – such as the creation of new ‘green’ jobs – are widely shared.

JUST TRANSITION/ INTERNATIONAL COMMITMENTS

- Paris Agreement of 2015 includes JT in its preamble, committing parties to ***'taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities'*.**
- At the COP24 (2018, Katowice) the heads of state and governments signed the **Silesia Declaration on Solidarity and Just Transition -** reconfirming the commitment and defining relationship between responses to climate change, equitable sustainable development and poverty eradication.
- **'Leave no one behind'** - directly linked to wider **Agenda 2030** and several **UN SDGs** (SDG5 - Gender Equality and Women's Empowerment, SDG7 - Affordable and Clean Energy, SDG8 - Decent Work and Economic Growth, SDG10 - Reduced Inequalities, and SDG13 - Climate Action).

INTERNATIONAL DEFINITIONS AND APPROACHES TO JUST TRANSITION

- ILO played a key role in developing the Just Transition Declaration, agreed at the UN Climate Summit in Glasgow (COP 26); Guidelines for a Just Transition Towards Environmentally Sustainable Economies and Societies for All (November 2015) negotiated between governments, employers, organizations, as well as workers and Trade Unions, established a global understanding for the term “just transition”.
- JT being not just a replacement of one industry with another, but a diversification towards a more sustainable, resilient, and inclusive economy.
- According to **ILO** A Just Transition means **greening the economy in a way that is as fair and inclusive as possible to everyone concerned**, creating decent work opportunities and leaving no one behind and involves maximizing the social and economic opportunities of climate action, while minimizing and carefully managing any challenges (through effective social dialogue among all groups, and respect for fundamental labour principles and rights)
- COP 27 reached agreement on establishing **a fund to compensate vulnerable nations for ‘loss and damage’ from climate-induced disasters**.

JT IN EUROPEAN CONTEXT – JTM AND SCF:

- **The Just Transition Mechanism (JTM)** along with the **Social Climate Fund (SCF)** – a key EGD and "Fit for 55" tools ensuring that the transition towards a climate-neutral economy happens fairly, and its impacts on the regions will be limited.
- **JTM** - a targeted support to help mobilize around €55 billion during 2021-2027 in the most affected regions.
- **SCF** – starting in 2026, aims to help vulnerable households, small business and transport users who are particularly affected by energy and transport poverty, i.e. to avoid negative effects of a new emissions trading system for buildings and transport. Mobilisation targets up to €86 billion.

JT IN EUROPEAN CONTEXT – JTM AND SCF:

- JTM consists of set of **three pillars:**
  - **Just Transition Fund (JTF)** -
    - Established by the Regulation (EU) 2021/1056 of the European Parliament and the Council on June 24th, 2021
    - Supports the economic diversification by up- and reskilling of workers, investments in SMEs, creation of new firms, research and innovation, environmental rehabilitation, clean energy, job-search assistance, and transformation of existing carbon-intensive installations.
    - The Fund is governed by the Just Transition Fund regulation and Common Provisions Regulation.
    - Total budget for 2021-2027 accounts to €19.32 bil. in current prices(of which € 10.87 bil. under Next Generation EU) - expected to mobilise conclusively close EUR €30 billion.
  - **InvestEU "Just Transition" scheme –**
    - providing a budgetary guarantee under the InvestEU programme across the four policy windows (sustainable infrastructure, research innovation and digitalization, SMEs, social investment and skills) and an InvestEU Advisory Hub that will act as a central entry point for advisory support requests. It is expected to mobilise €10-15 billion in mostly private sector investments.
  - **A new Public Sector Loan Facility –**
    - combining €1.5 billion of grants financed from the EU budget with €10 billion of loans from the European Investment Bank, to mobilise between €25-30 billion of public investment.

JT IN EUROPEAN CONTEXT: SLOVAKIA CASE STUDY

- Slovakia has qualified to access the funds from the JTF in the total amount of €459 mil. until 2026 to support the transformation of Horná Nitra, Banská Bystrica and Košice regions, which are particularly vulnerable to the transition to a low-carbon economy.
- Horná Nitra region (HNR) - a historical activity of coal production coal used for electricity generation and district heating. HNR one of the four pilot transforming regions in the EU.
- The Slovak Government decided to phase out of coal by 2023 and commissioned an Action Plan that would provide concrete steps and solutions for the economic transformation of the region.
- After coal phase-out, heat will be produced by heat pump systems (36%), solar energy (11%) and biomass (53%). Natural gas would be used only to cover peaks in demand during winters.
- The transition will help cut CO2 emission by 73%.

INTERNATIONAL CONTEXT: ENABLING JUST TRANSITION, EXPERIENCE FROM SELECTED COUNTRIES

- The impact of climate change on economies worldwide is diverse and shaped by respective national circumstances. Although the underlying challenge faced by all countries is to de-couple economic growth from GHG emissions, there is no ‘one size fits all’.

- In most countries, JT starts with the need to phase out fossil fuels, in particular coal, while mitigating potential negative impacts of this transformation on people, communities, and regions.

- National Climate Plans of the leading emerging/emerged non-western economies refer to the issue of Just Transition to a varying extent.
  - E.g. Brazil and South Africa reflect the issue of Just Transition extensively and perceive it as a policy imperative.
  - China and India regard Just Transition in broader economic and social development terms.
  - In Bangladesh, UAE and Russia the political and public discussion regarding JT is only emerging.
- However, each of the countries are consistent in identification of key sectors that need to be sustained during transition, i.e., economic development, food and water security, protection of employment and the poor, resilience to immediate events, and not lastly energy security and electricity access.

China

- Coal is a driving source of energy for economic growth and expanding electricity access to 100% of the population – a landmark achieved in 2015. Moreover, China is by far the largest coal producer and consumer globally.
- Unlike other countries, Chinese environmental and economic policy does not operate with an official definition of 'Just Transition'. However, several facets of Just Transitions, namely economic empowerment and democratized energy supply resonate in many Chinese official policies and plans.
- In the *14th Five Year Plan (2021-2025)* for National Economic and Social Development, the government emphasizes the country's transition from quantity to quality in their development agenda. There is also repeated mention of 'orderly' transition towards carbon neutrality, implying that economic stability, energy supply and food security and protection of employment must be safeguarded.
- NDC: In 2021 amended to reflect changing climate priorities. By 2030, China plans to:
  - peak CO2 emissions and lower C02e emissions/unit GDP by 60-65%,
  - increase non-fossil fuel primary energy consumption to 20% and
  - increase forest stock volume by 4.5 billion cubic meters from the 2005 level.

At-risk Sectors

- Coal – loss of employment (also in coal related/ supportive industries), lower economic output → lower province/ state revenues, socio-economic implications, physical vulnerabilities, electricity cost increase

- Opportunities: environment – mainly air and water quality – being of biggest concern for the Chinese (double edged sword? An emphasis needs to be put on sustainable mining of minerals needed for transition), new skills + modernisation, green industry (geopolitical opportunity/ advantage vis-à-vis the EU in terms of increased dependence and assymetry?), all of the opportunities should be distributed evenly, ie. Not to benefit just eastern part but also western China where ethnic tensions (and repression from central gvmt) are high

South Africa

- Coal value chain is one of the most at-risk sectors for Just Transition in **South Africa** as it forms an important part of the formal economy. Coal generates about 85% of SA's electricity, SA is the 7th largest producer and the 5th largest coal consumer and exporter globally.
- At the same time constrained by climate change impacts (food security, lack of water resources) and high rate of unemployment (more than 35%).
- South Africa's government has set out three guiding principles underpinning a just transition towards an environmentally sustainable economy and society - **distributive justice, restorative justice, and procedural justice**.
- The **2011 National Climate Change Response White Paper emphasizes a just transition as a policy imperative** and an essential part of an effective climate change response.
- In 2012 a National Development Plan (NDP) with a focus on environmental sustainability and transition to a low-carbon economy is adopted.
- In 2020, PCC (originally the Presidential Climate Change Coordinating Commission) is established, with the aim to *"advise on and facilitate a common understanding of a just transition, aware of the socio-economic, environmental and technological implications of climate change".*
- **The Just Transition Framework was finally adopted beginning of the 2022.**

A Framework for a Just Transition in South Africa

- For **a long time,** despite there were areas of consensus regarding just transition, **a single policy** frame that set out the vision, principles, and interventions **was lacking**.
- The creation of the Presidential Climate Commission (PCC) in 2020 was aimed at overseeing and facilitating a just transition to a low-emissions and climate-resilient economy with **one of its main tasks being to develop a just transition framework for South Africa**.
- The **framework** was finally **adopted in March 2022 and** is the first building block towards impartial transition, **bringing coordination and coherence** and setting out a shared vision for the just transition, principles to guide the transition, and policies and governance arrangements to give effect to the transition. South Africa's framework is a **pioneer** one in JT **among the non-western countries**.
- The framework **focuses on managing the social and economic consequences of just transition policies**, while putting human development concerns at the centre of decision-making.
- The framework is organised in seven main sections; foundations, definition of a JT for South Africa, guiding principles, at-risk sectors and value chains, key policy areas, effective governance arrangements, and financing a JT.

Opportunities

- Environmental
- Modernisation
- Skills development
- Competitiveness increase

Financing Just Transition: the role of MDBs

- A clear role for MDBs in financing the transition to a low-carbon and green economy, however less attention paid to their role in supporting a JT.
- MDBs can adopt long-term and strategic approaches, which can help mobilize finance and implement JT policy at a regional, country, and sub-national level.
- Most MDBs have operational strategies that recognize various aspects of JT through their strategies on climate change, economic inclusion and labour issues, and regional development.
- EIB and eight other development banks published joint „High-Level Statement“ in 2019 and „MDB Just Transition High-Level Principles“ ahead of COP26 covering areas such as gender equality, economic empowerment for women and youth, conflict and fragility, and migration.
- Ten MDBs also issued a „Collective Climate Ambition- A Joint Statement at COP26 by the Multilateral Development Banks“ reflecting their approaches and financial capabilities.

MDB's climate commitments:

- **EIB**: **Climate Bank Roadmap 2021-2025** - "support investment in climate action and environmental sustainability of **€1 trillion in the critical decade from 2021 to 2030".**
- In 2019, EIB climate financing stood at €19.5 billion, supporting 400+ projects across the world. EIB will increase its level of support to climate action and environmental sustainability to exceed 50% of its overall lending activity by 2025 and beyond. EIB's Roadmap includes four core workstreams:
  - Accelerating the green transition - 11 focus areas for green investment - organized around the main focus areas of the European Green Deal
  - Just for all - Just Transition Mechanism - an integral part of the Sustainable Europe Investment Plan expected to mobilize €100 billion during the 2021-27 MFF with financing from the EU budget and the Member States as well as contributions from InvestEU and the EIB
  - Supporting Paris Agreement goals - keep the rise in global average temperatures below 2˚C above pre-industrial levels, and pursue efforts to limit the increase to 1.5˚C.
  - Strategic coherence and accountability, with essential aspects being policy, transparency, accountability, quality assurance; and institutional support.

MDB's climate commitments:

- **EBRD**'s aims, rationale and approach to implementation of the just transition are set out in the EBDR just transition initiative (2020). In 2021, EBRD approved a climate action resolution in which it committed to fully align the Bank's activities with the objectives of the Paris Agreement by the end of 2022.

- **World Bank**'s The Climate Change Action Plan 2021–2025" commits to achieving 35 percent in climate finance for the entire World Bank Group, as an average over the five years of 2021–2025 with priority sectors being energy, agriculture, food, water and land, cities, transport and manufacturing.

- **ADB**'s Energy Transition Mechanism, the framework supporting retirement of coal-fired power plants while developing financing mechanisms approaching each country specifically, is in the development process. Overall, ADB committed in 2021 to increase its climate finance ambitions to $100 billion by 2030.