Module 2

GREEN FINANCE AND THE CASE OF ARMENIA

MAIA C ROSSI

Meet The Trainer

MAIA C ROSSI

Maia is a sustainability professional with extensive technical expertise, a wide experience and a focus on climate change and climate finance. With a long track record in managing high-profile projects from initiation to final delivery, she is recognised for assessing climate change, environmental, socio-economic and gender impacts of large-scale development projects, design and carry out stakeholder engagement activities and managing and mentoring cross-functional teams across industries and geographies.

During her career, Maia has worked with numerous governments and companies from a variety of sectors including government agencies, intergovernmental organisations, financial services, development institutions and IFC bank, mining, oil and gas and construction across the world and in very diverse country contexts such as the UK, US, UE, the middle East and in most of the African countries.

She is currently a PhD candidate at the Business School of the University of Bath (UK). Her research project studies the intersection between the effect of climate change on organisations and careers and focuses on risks and opportunities of transition to lower carbon economy

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Agenda

Quiz time!
Takeaways and recap last session
Scientific Context of Climate change
Green and Climate finance
    Paris-Alignment, ESG and SDG-alignment

The Case of Armenia
    Armenia Climate Challenge
    Armenia NDC and other climate regulations
    Armenia and GCF: Scaling up green finance practices in Armenia programme

Takeaways and Recap from Module 1

Quiz time!

Test your knowledge! 1/10

What is global warming?

A. A long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in the Earth's atmosphere.

B. The complex shifts that emerge due to human activity (greenhouse gas emissions into the atmosphere) that affect the planet's weather and climate systems.

C. A short-term shift in regional weather patterns.

Test your knowledge! 2/10

What is climate change?

A. A short-term shift in regional weather patterns.

B. A long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in the Earth's atmosphere.

C. The complex shifts that emerge due to human activity (greenhouse gas emissions into the atmosphere) that affect the planet's weather and climate systems.

Test your knowledge! 3/10

Which correlation does exist between temperatures rise and CO2?

A. None

B. They are correlated, the less CO2 emissions, the more temperatures rise.

C. They are correlated, the more CO2 emissions, the more temperatures rise.

Test your knowledge! 4/10

How many degrees Celsius of warming we should limit to in order to mild the effects of climate change on our ecosystem and existence?

A. 1.8 degrees C above pre- industrial level

B. 1.5 – 2 degrees C above pre- industrial level

C. 0.8 degrees C

Test your knowledge! 5/10

What is one of the three key conventions on Climate change?

A. IPPC – Intergovernmental Panel on Climate Change

B. UNCCC - United Nations Convention on Climate Change

C. UN_SDGs – Sustainable Development Goals

Test your knowledge! 6/10

What does ESG stand for?

Test your knowledge! 7/10

What do we intend with Mitigation initiatives?

A. One initiative which avoids or reduces GHG emissions or enhance GHG sequestration; and contributes to the stabilisation of atmospheric GHG, in alignment with the Paris Agreement.

B. One initiative which builds the long-term resilience of people, livelihoods and places (natural and physical infrastructure) to demonstrable climate-related vulnerabilities

Test your knowledge! 8/10

What does the term sustainable finance commonly stand for?

A. the process of taking due account of environmental, social and governance considerations in investment decisions. It refers to climate change mitigation and adaptation, as well as the environment (preservation of biodiversity, pollution prevention and circular economy).

B. is an umbrella term to define the financing of investments that provide environmental benefits in the broader context of environmentally sustainable development.

Test your knowledge! 9/10

How many SDGs the UN launched in 2015?

A. 21

B. 15

C. 17

Test your knowledge! 10/10

What are the Nationally Determined Contributions (NDCs)?

A. NDCs are official documents prepared by the countries to access climate finance toward a process of accreditation.

B. NDCs are countries sustainable reports which indicate the efforts the country is doing towards the UN SDG.

C. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.

Answers and Recap

Context Of Change

Climate Change Regime

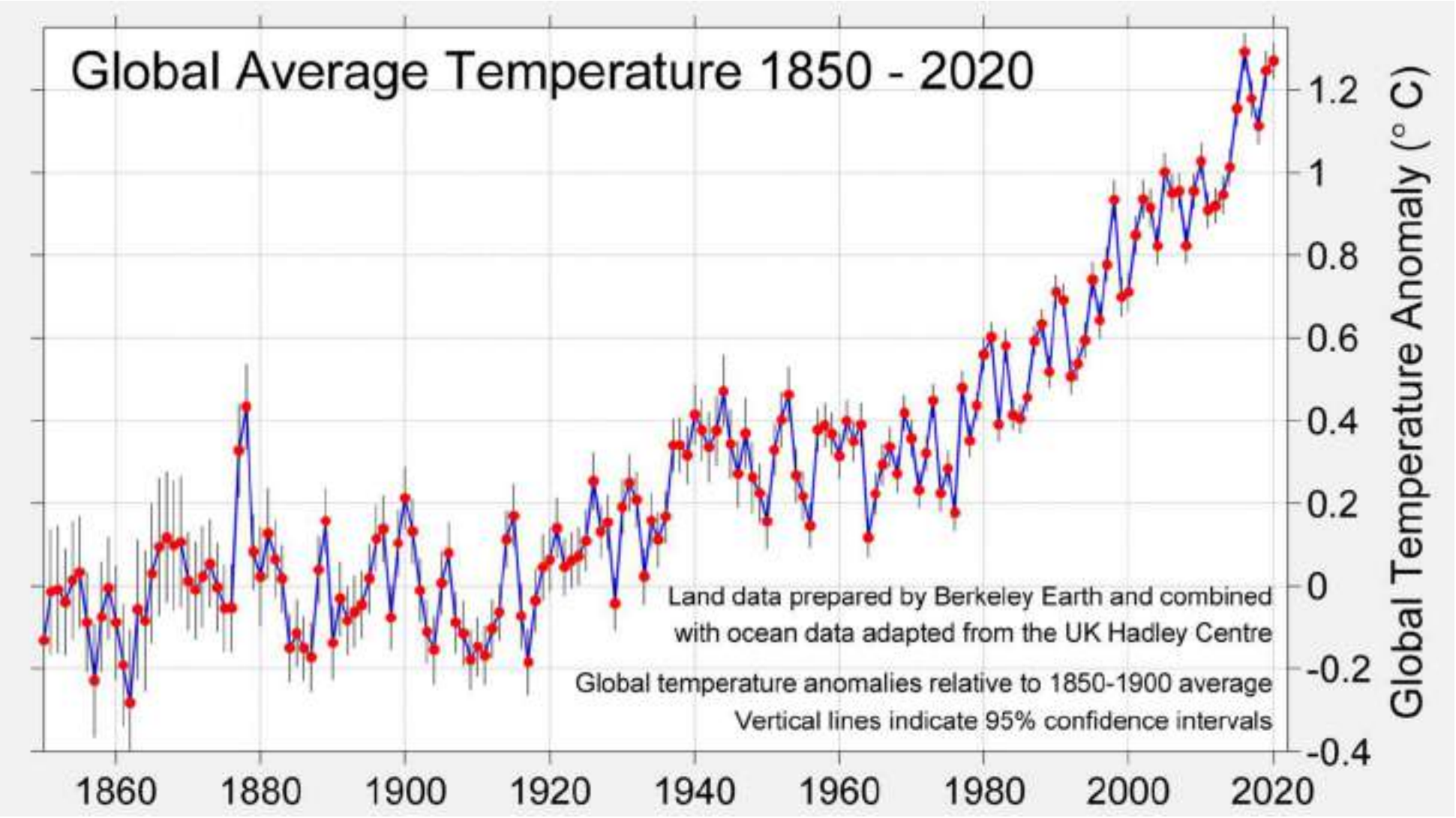
Climate change refers to the complex shifts that emerge due to human activity (greenhouse gas emissions into the atmosphere) that affect the planet's weather and climate systems (The National Geographic).

Climate change encompasses extreme weather events, shifting wildlife populations and habitats, rising seas etc.

Global warming: "Global warming is the long-term heating of Earth's climate system observed since the pre-industrial period (between 1850 and 1900) due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in the Earth's atmosphere" (NASA).

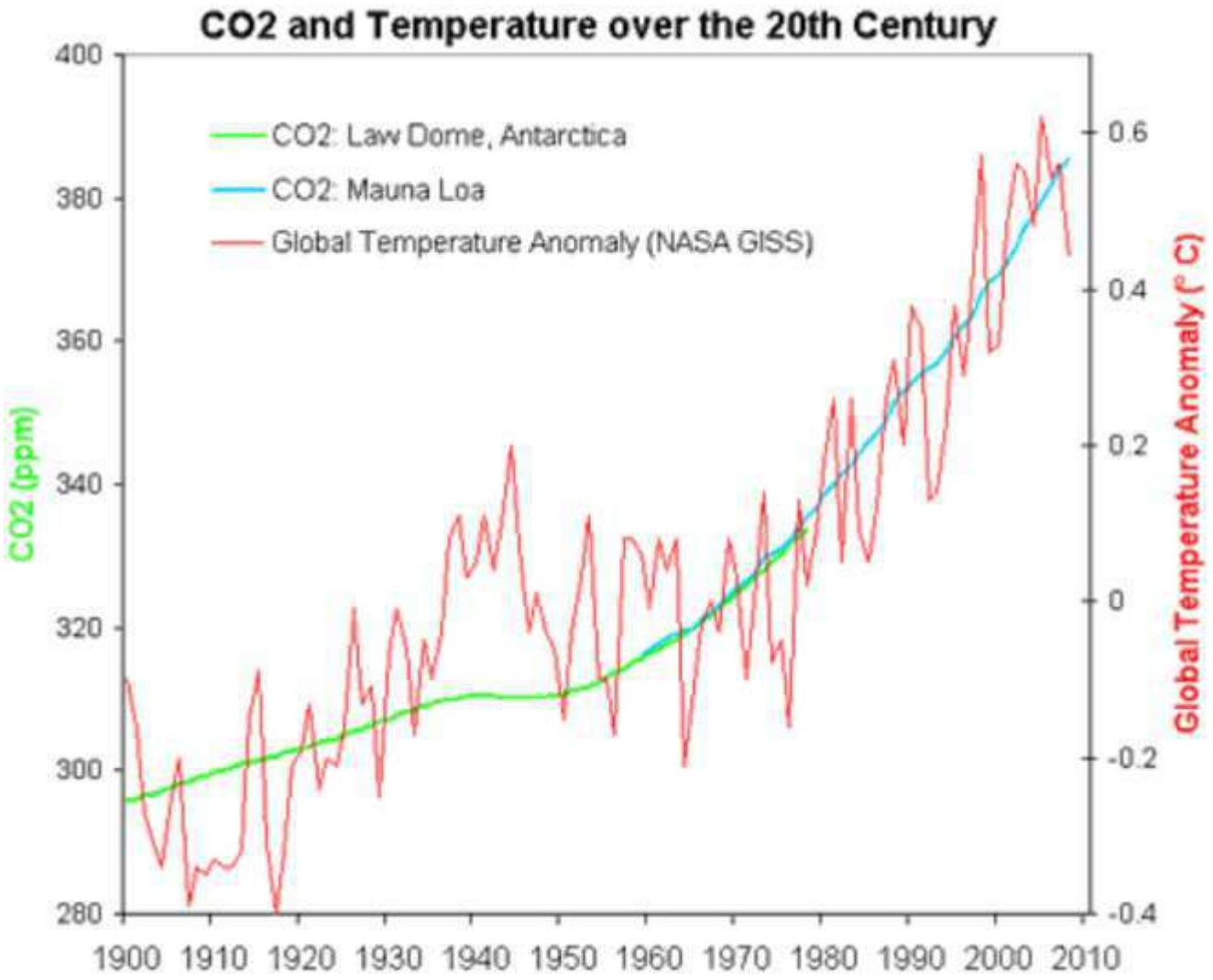
The Scientific Context

TEMPERATURE RISE



The Scientific Context:

Correlation btw CO_2 and temperature rise



There is an algorithmic relations between CO_2 concentrations and temperature rise

Context Of Change

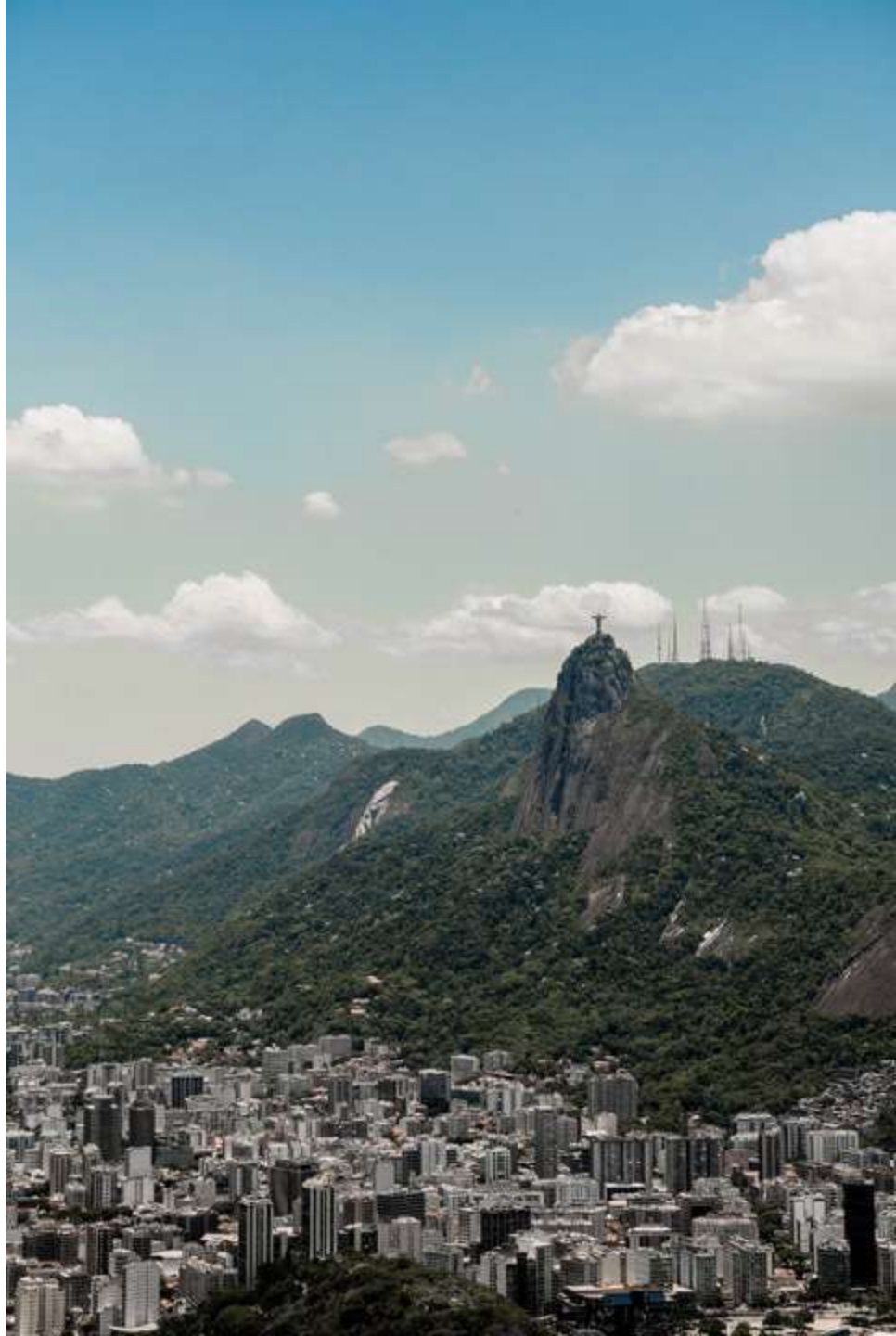
Agreed aspirational limit of 1.5 degrees Celsius of warming by the Intergovernmental Panel on Climate Change (IPCC) in order to limit the effects of climate change on our ecosystems and existence.
1.5 degrees versus 2 degrees?

•At 2°C, extreme heat will be 2.6x worse, the world will experience 10x more ice-free summers, there will be 2x more species loss, ecosystem shifts will be 1.86x worse, there will be a 2.3x reduction in crop yields, a 29% further decline in coral reefs, and double the decline in marine fisheries.

Three Key Conventions

Originating from the Rio Convention of 1992, based upon numerous multilateral exchanges and the Stockholm Declaration (1972) - Declaration of the United Nations Conference on the Human Environment

* United Nations Convention on Climate Change (**UNFCCC**)
* Convention on Biological Diversity (**CBD**)
* United Nations Convention to Combat Desertification (**UNCCD**)



What are the ESG?

Environmental, social and governance (ESG) measures and describes the environmental, social and governance issues that are considered to influence corporate behaviour in their investment decisions

ESG area	
Environmental	·GHG targets; Air quality targets ·Resource efficiency (water, energy savings) ·Resilience improved ·Environmental certifications
Social	·Gender equality and diversity programs ·Lost time injury rates; Fatalities declining ·Training hours per employee ·Relationship with unions; Benefits
Governance	·The existence of appropriate internal controls through an audit system / checks & balances ·Board / committee level oversights ·Level of board independence, quality, diversity ·Remuneration incentives ·Litigation actions against the company ·Taxation; Data and IT security and systems ·Accounting Quality

Climate Finance (Mitigation and Adaptation)

UNFCCC Definitions: 'Climate finance refers to local, national or transnational financing drawn from **public, private and alternative sources of financing** — that seeks to support mitigation and adaptation actions that will address climate change. It is needed for **adaptation and mitigation.**''
UNFCCC 2020

Mitigation: avoids or reduces GHG emissions or enhance GHG sequestration; and contributes to the stabilisation of atmospheric GHG, in alignment with the Paris Agreement.

Adaptation: builds the long-term resilience of people, livelihoods and places (natural and physical infrastructure) to demonstrable climate-related vulnerabilities.

Green, Climate and Sustainable Finance

Sustainable finance typically refers to the process of taking due account of environmental, social and governance (ESG) considerations in investment decisions. It refers to climate change mitigation and adaptation, as well as the environment (preservation of biodiversity, pollution prevention and circular economy).

Green finance is an umbrella term to define the financing of investments that provide environmental benefits in the broader context of environmentally sustainable development. Subsets of green finance include climate finance, environmental finance and conservation finance.

Sustainable

Green

Climate

Low-carbon

Climate change mitigation (clean energy; energy efficiency; e-connectivity; low-carbon agriculture)

Climate change adaptation (increased resilience; regeneration; livelihoods; health)

Other environmental issues:
- Water resources
- Resources efficiency
- Circular economy
- Pollution abatement
- Biodiversity & land restoration

Cross-cutting and nature-based solutions; environmental certifications; offsetting activities

Social outcomes:
- Health, Education
- Gender empowerment
- Inclusion programs
- Human rights
- Supply / Value chain integrity
- ESS

Socio-economics outcomes:
- Reduced poverty
- Green recovery
- Green jobs

Others SDG's

Sustainable Development Goals 2015-2030

The Sustainable Development Goals or SDGs were adopted by the UN Assembly in 2015, they replace the Millennium goals for poverty reduction, till 2030.

7 are directly related to climate-change:

- Clean water and sanitation
- Affordable and clean energy
- Sustainable cities and communities
- Responsible consumption and production
- Climate Action
- Life below water
- Life on land

ESG and SDG Together

Environmental	Social	Governance
6) Clean water and sanitation 7) Affordable and clean energy 11) Sustainable cities and communities 12) Responsible consumption and production 13) Climate action 14) Life under water 15) Life on land	1) No poverty 2) Zero hunger 3) Good health and well-being 4) Quality education 5) Gender equality 8) Decent work and economic growth 9) Industry, innovation and infrastructure 10) Reduced inequalities	16) Peace, justice and strong institutions 17) Partnership for the goals

Context Of Change - NDCs

- 2015 was a historic year in which 196 Parties came together under the ***Paris Agreement*** to transform their development trajectories so that they set the world on a course towards sustainable development, aiming at ***limiting warming to 1.5 to 2 degrees C above pre-industrial levels***.
- Through the Paris Agreement, Parties also agreed to a ***long-term goal for adaptation*** – to increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.
- Additionally, they agreed to ***work towards making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development***.
- ***Nationally determined contributions (NDCs)*** are at the heart of the Paris Agreement and the achievement of these long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change.
- The Paris Agreement (Article 4, paragraph 2) requires each Party to ***prepare, communicate and maintain*** successive nationally determined contributions (NDCs) that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.

EUROMONEY LEARNING

The case of Armenia: The climate challenge

Armenian Climate Context

Armenia's climate can be described as **highland continental**, with **large variation between summer highs** (June to August) **and winter lows** (December to February).

The country also experiences large climatic contrasts because of its intricate terrain, and the climates range from **arid to sub-tropical and to cold, high mountains**.

Summer highs in Armenia's capital Yerevan average around 30ºC–33ºC while the average in winter is 1ºC–3ºC. The more mountainous regions experience lower average temperatures and prolonged periods of snow cover. The average annual precipitation is low at 526 millimeters (mm).

https://climateknowledgeportal.worldbank.org/country/armenia/climate-data-historical

Armenian Climate Context

Precipitation intensity is greater in Armenia's high-altitude regions with May and June the wettest months. For Armenia, altitude is the strongest controlling factor determining the spatial distribution of temperatures and precipitation.

Sub-zero average temperatures are common in Armenia's mountain ranges while its highest average temperatures are experienced in the relatively low-lying western plains.

Similarly, Armenia's highest peaks may receive up to 1,000 mm of annual precipitation while precipitation can be as low as 200 mm in the western plains.

https://climateknowledgeportal.worldbank.org/country/armenia/climate-data-historical

Question time!

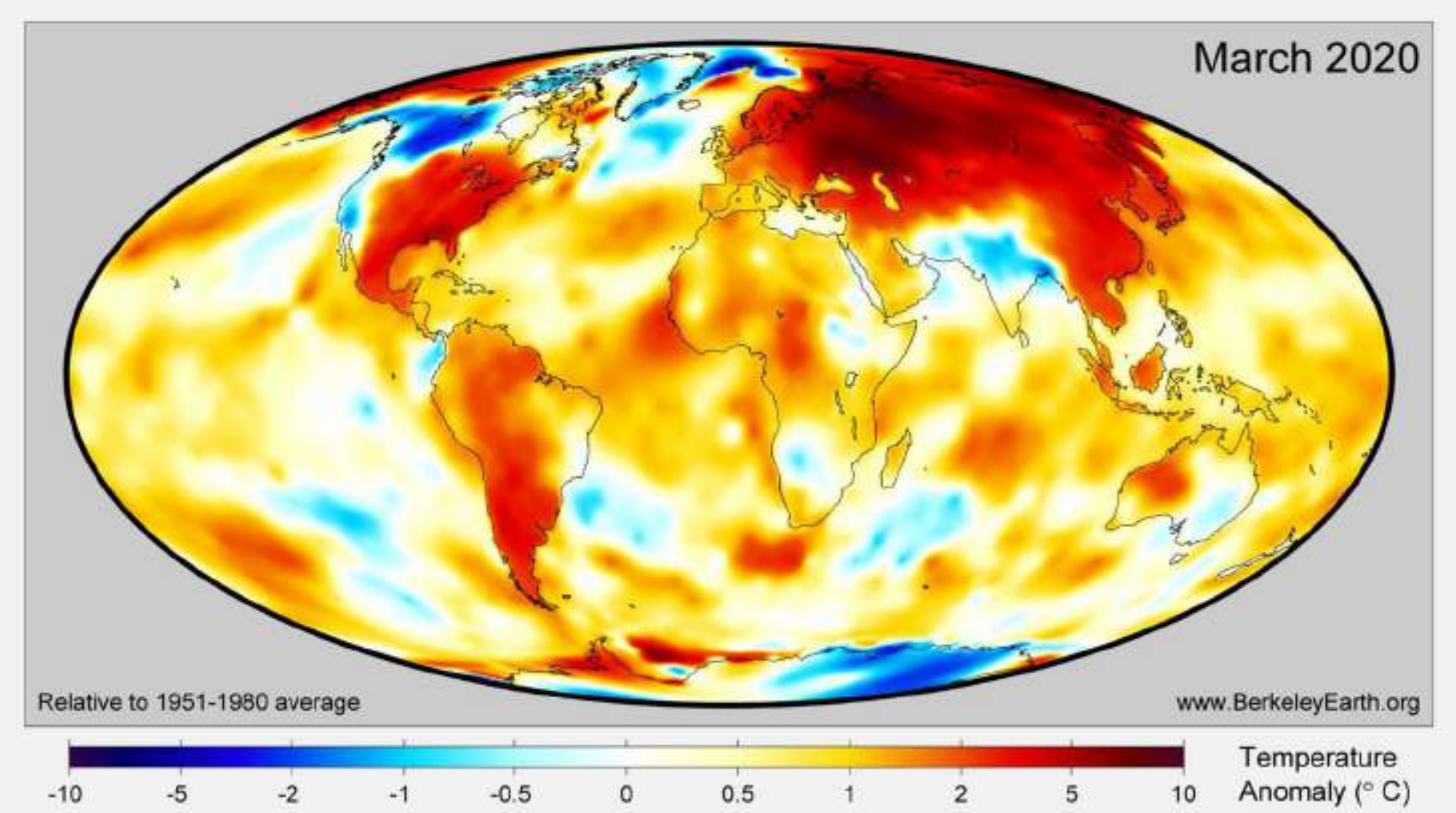
What are the main climate change trends observed in Armenia?

A. Rise of Temperatures

B. More frequent extreme weather

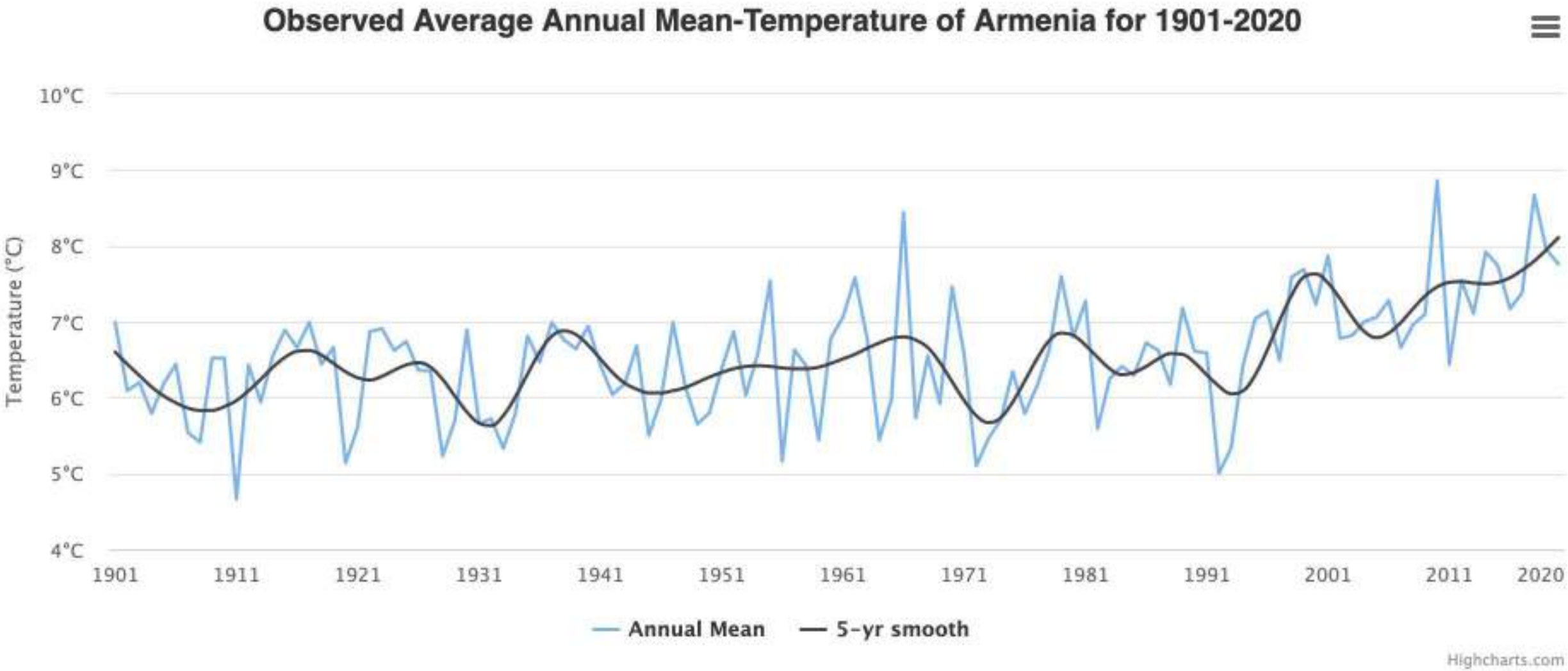
C. More droughts

Anomalies



From the *Berkeley Earth* global temperature report – we see the global distribution of temperature changes 2020 relative to the period 1951 – 1980.

Armenian Climate Change Trends



Temperatures: trends

Armenia's Fourth National Communication (NC4) reports that it experienced an average temperature rise of 1.23ºC between 1929–2016.

This historical rise in temperatures has resulted in the rapid shrinking of the glaciers in Armenia's mountain regions, with spatial extents retreating at around 8 m per year.

Trends suggest climate variability is increasing and in 2018, Yerevan experienced a new record July temperature, reaching 42ºC.

Precipitation: trends

Armenia's NC4 reported a **10% reduction in average annual precipitation volume**, which was documented over the period 1935–2012.

The spatial distribution of precipitation changes is irregular: the northeast and central regions have become more arid.

However, precipitation has increased in the southern and northwestern regions and in the western region of the Lake Sevan Basin.

The number of days with heavy rainfall and hailstorms has increased…

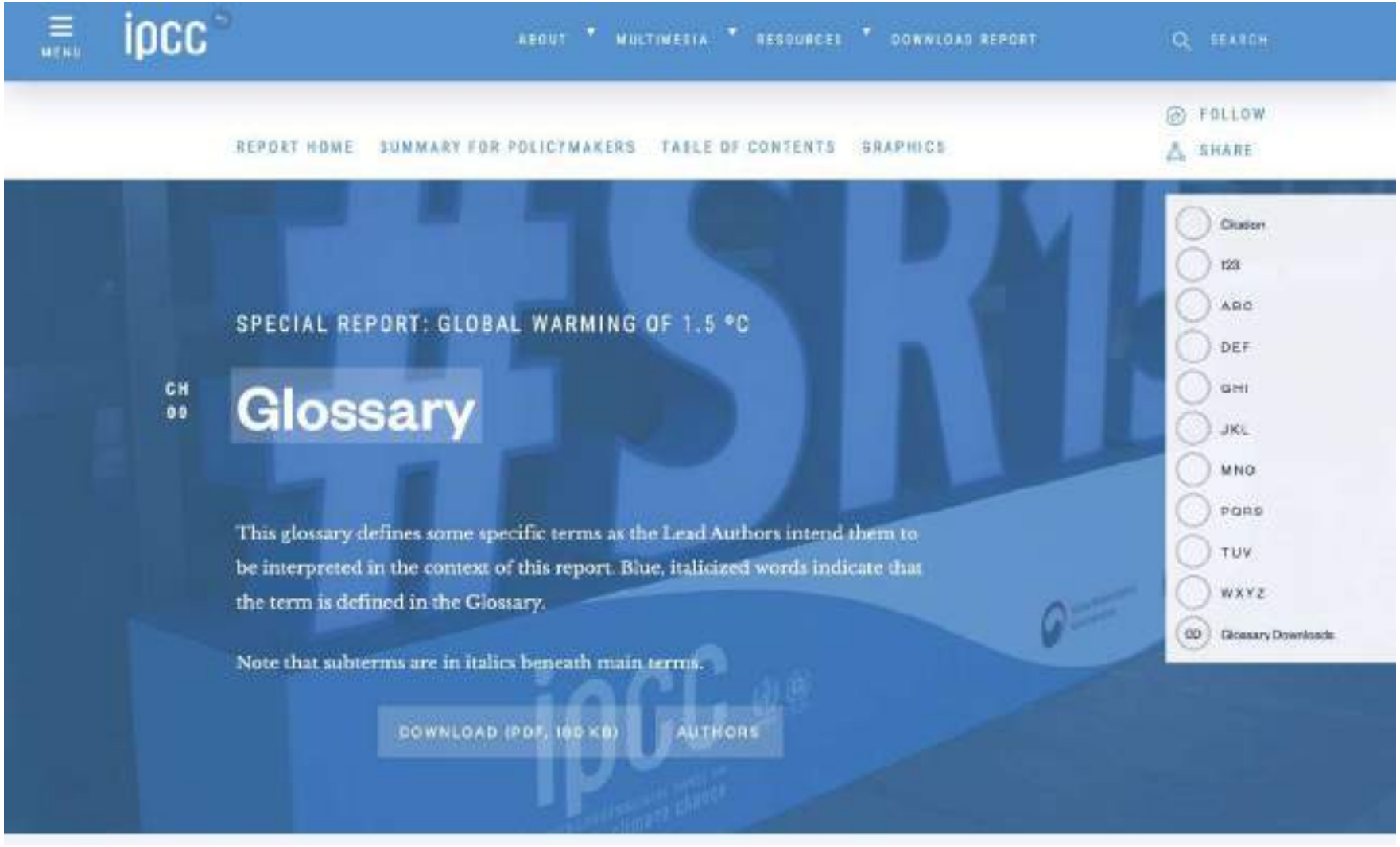
Armenian Climate Projections

What is a Climate projection?

A climate *projection* is the simulated response of the *climate system* to a *scenario* of future emission or concentration of *greenhouse gases (GHGs)* and *aerosols*, generally derived using *climate models*. Climate projections are distinguished from climate predictions by their dependence on the emission/concentration/*radiative forcing* scenario used, which is in turn based on assumptions concerning, for example, future socioeconomic and technological developments that may or may not be realized.

https://www.ipcc.ch/sr15/chapter/glossary/

Armenian Climate Glossary



Armenian Climate Projections

Group exercise

1) Open https://climateknowledgeportal.worldbank.org/

2) Find ‘Armenia’

3) Go to Climate Projections tab

4) Browse a bit the maps

5) Go to the bottom of page, discuss the summary

Armenian CC Projections

FIGURE 6. Historic and projected average annual temperature in Armenia under RCP2.6 (blue) and RCP8.5 (red) estimated by the model ensemble. Shading represents the standard deviation of the model ensemble.[25]

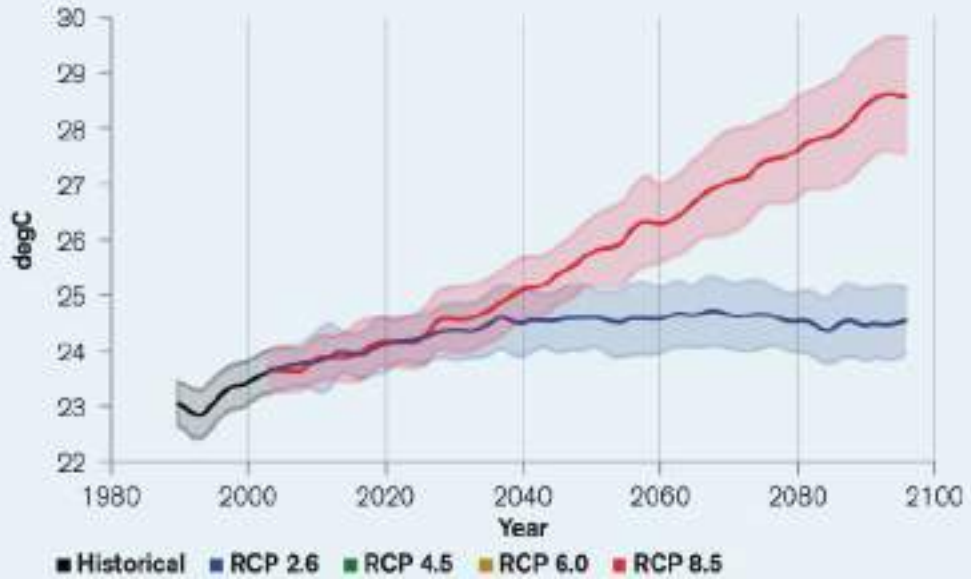


FIGURE 7. Projected change (anomaly) in monthly temperature, shown by month, for Armenia for the period 2080–2099 under RCP8.5. The value shown represents the median of the model ensemble with the shaded areas showing the 10th–90th percentiles.[24]

[Link to data reference](#).

What the future holds?

Great uncertainty remains around future changes in average annual precipitation, none of the model ensemble predictions are statistically significant and the estimated ranges are large.
Most models predict an increase in the intensity and frequency of extreme precipitation events.

What the main climate hazards for Armenia?

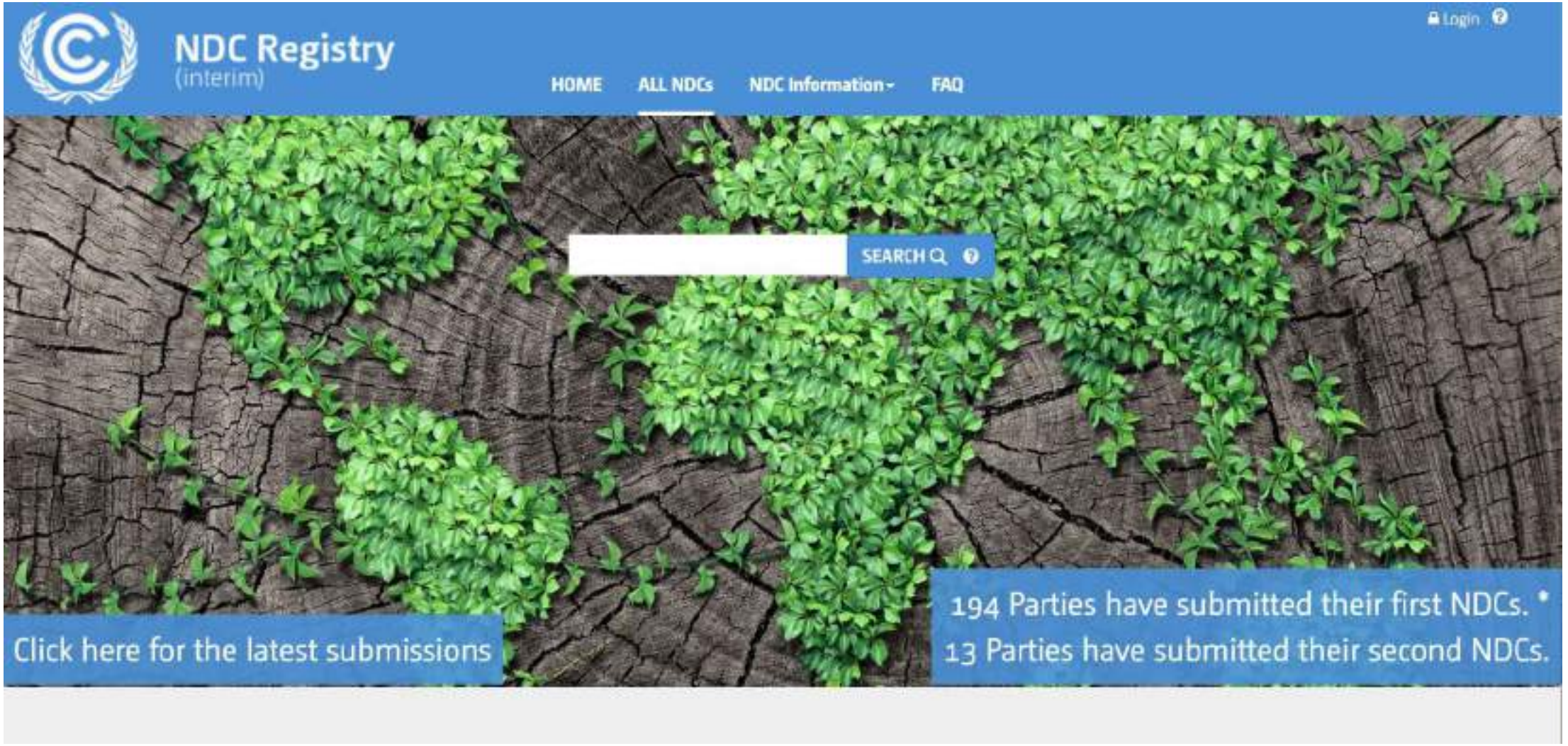
The most serious disasters in Armenia's history have primarily been earthquakes, notably the 1988 Spitak quake, which killed over 25,000 people. However, high poverty rates have persisted in Armenia and are increasing vulnerability to climate hazards. Armenia is vulnerable to **mudflow and landslides** with around 4.1% of the country's area exposed to landslide risk, resulting in approximately one third of its communities. Large areas face **heatwaves** and **drought risk**, and some areas, particularly the Ararat and Shirak valleys, also face **flood risk**. Around 40,000 people are affected by flooding each year, with estimates of the annual cost to national GDP ranging between $20 to $100 million.29

Source: The World Bank, 2021


Break

The case of Armenia NDC and other climate regulations

Armenian Nationally Determined Contribution - NDC



https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx

Armenian NDC

- The Republic of Armenia ratified the UN Framework Convention on Climate Change (UNFCCC) in May 1993 as a developing country not included in Annex I to the Convention.
- In December 2002, Armenia ratified the UNFCCC Kyoto Protocol.
- Armenia signed and ratified the Paris Climate Agreement in 2017
- Armenian first NDC published in September 2015
- https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Armenia%20First/INDC-Armenia.pdf

Underlying Principles of the INDC (Intended NDC)

- Limit global greenhouse gas (GHG) emissions to such a level that the global average temperature does not exceed 2C;
- Principle of intrageneration equity;
- Ecosystem-based approach;
- The INDC shall be based on the principle of 'Green economy' and be compatible with the social and economic development goals of the Republic of Armenia.

Armenian NDC emission target

To set the total aggregate quantitative contribution of the Republic of Armenia under INDC equal to:

- 633 Mtons carbon dioxide equivalent (189 tons per capita x 3.35 million people) for the period of 2015-2050 (633/35=18Mton per year); OR

- an annual average of 5.4 tons per capita. In 2010, Armenia's GHG emissions comprised 2.14 tons per capita.

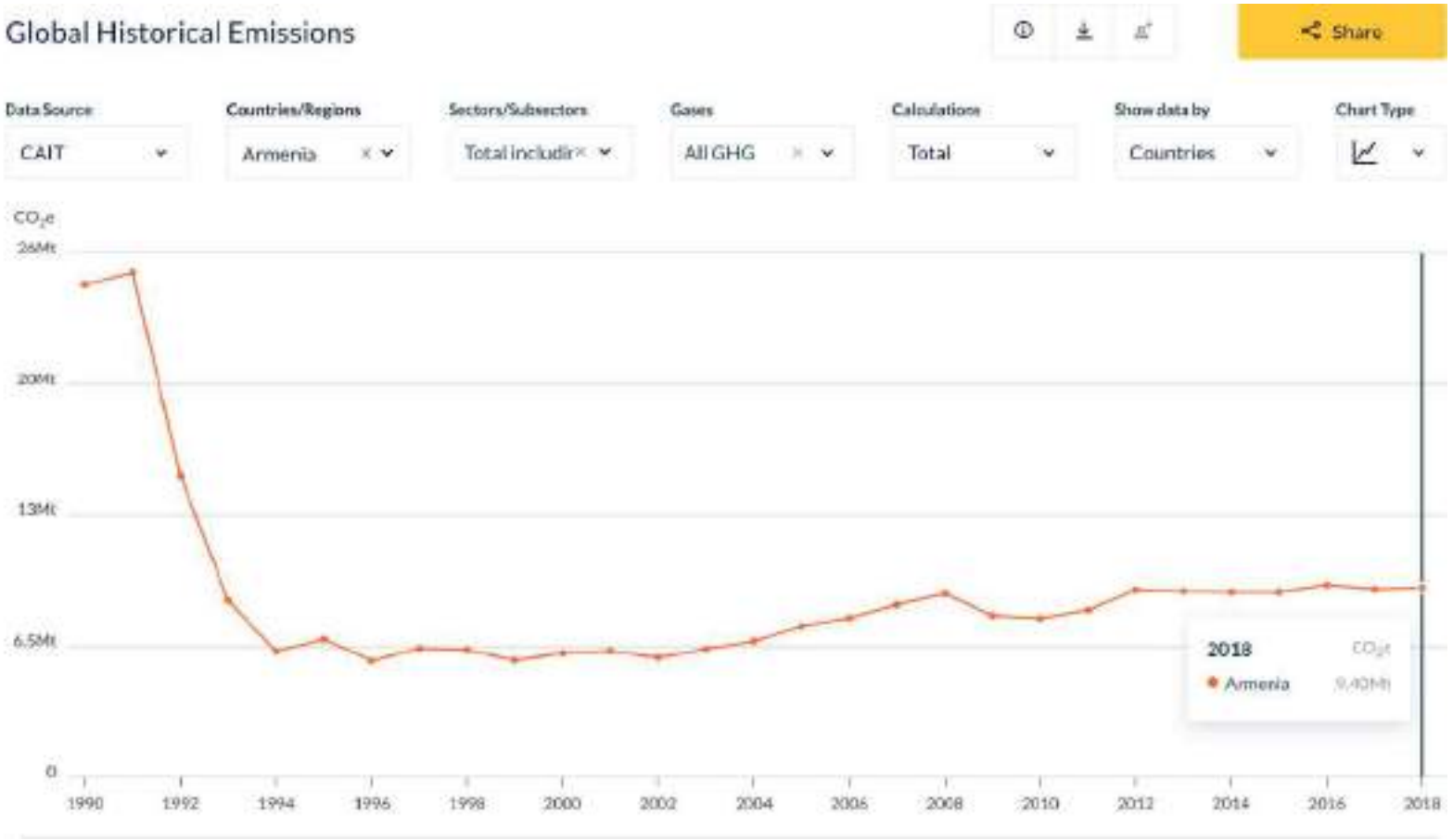
Armenian NDC focus

The main sectors included in the mitigation contribution are:

a) Energy (including renewable energy and energy efficiency;
b) Transport (including development of electrical transport);
c) Urban development (including buildings and construction);
d) Industrial processes (construction materials and chemical production);
e) Waste management; (solid waste, waste water, agricultural waste);
f) Land use and Forestry (afforestation, forest protection, carbon storage in soil).

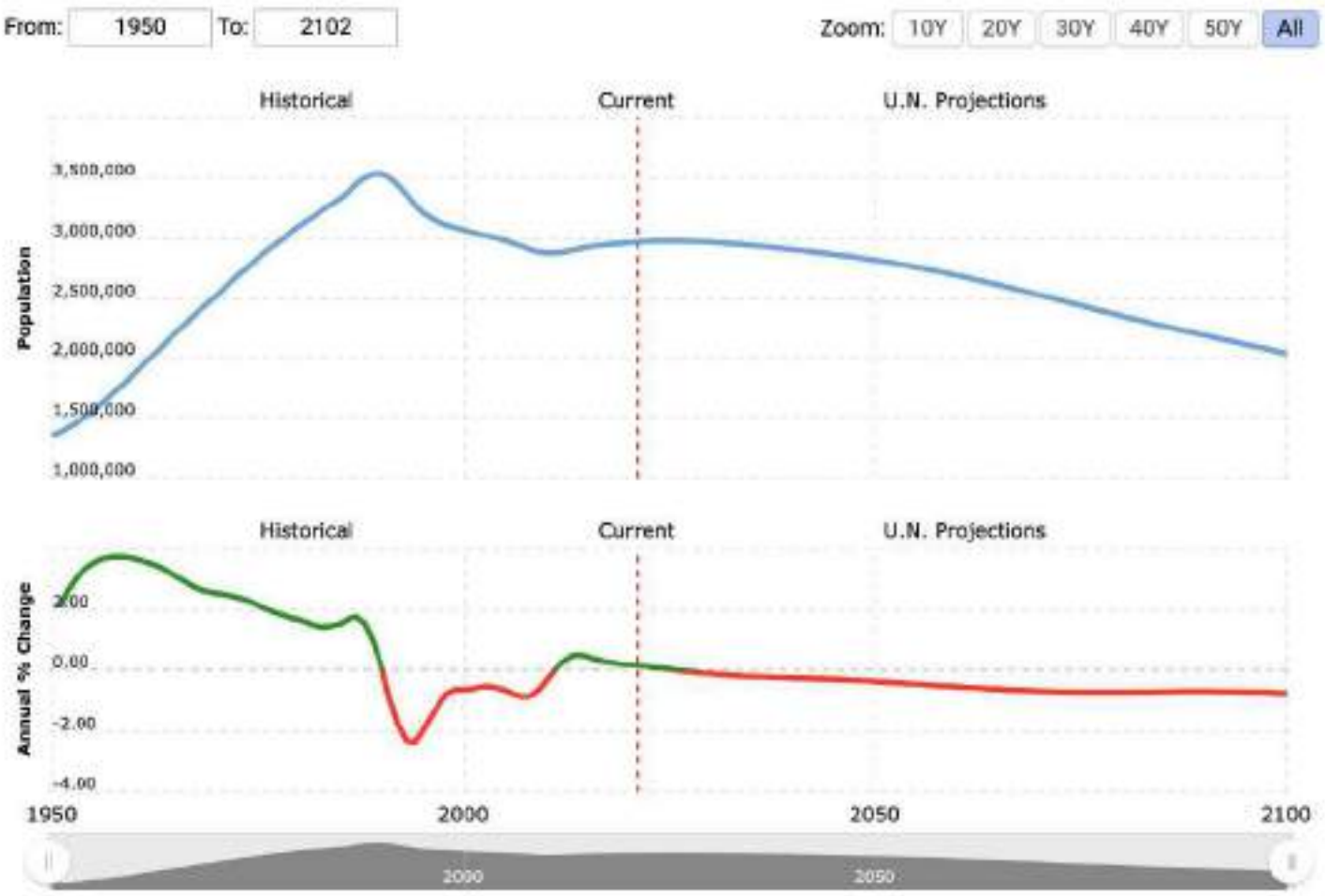
https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Armenia%20First/INDC-Armenia.pdf

What are Armenian CO2e Mt?



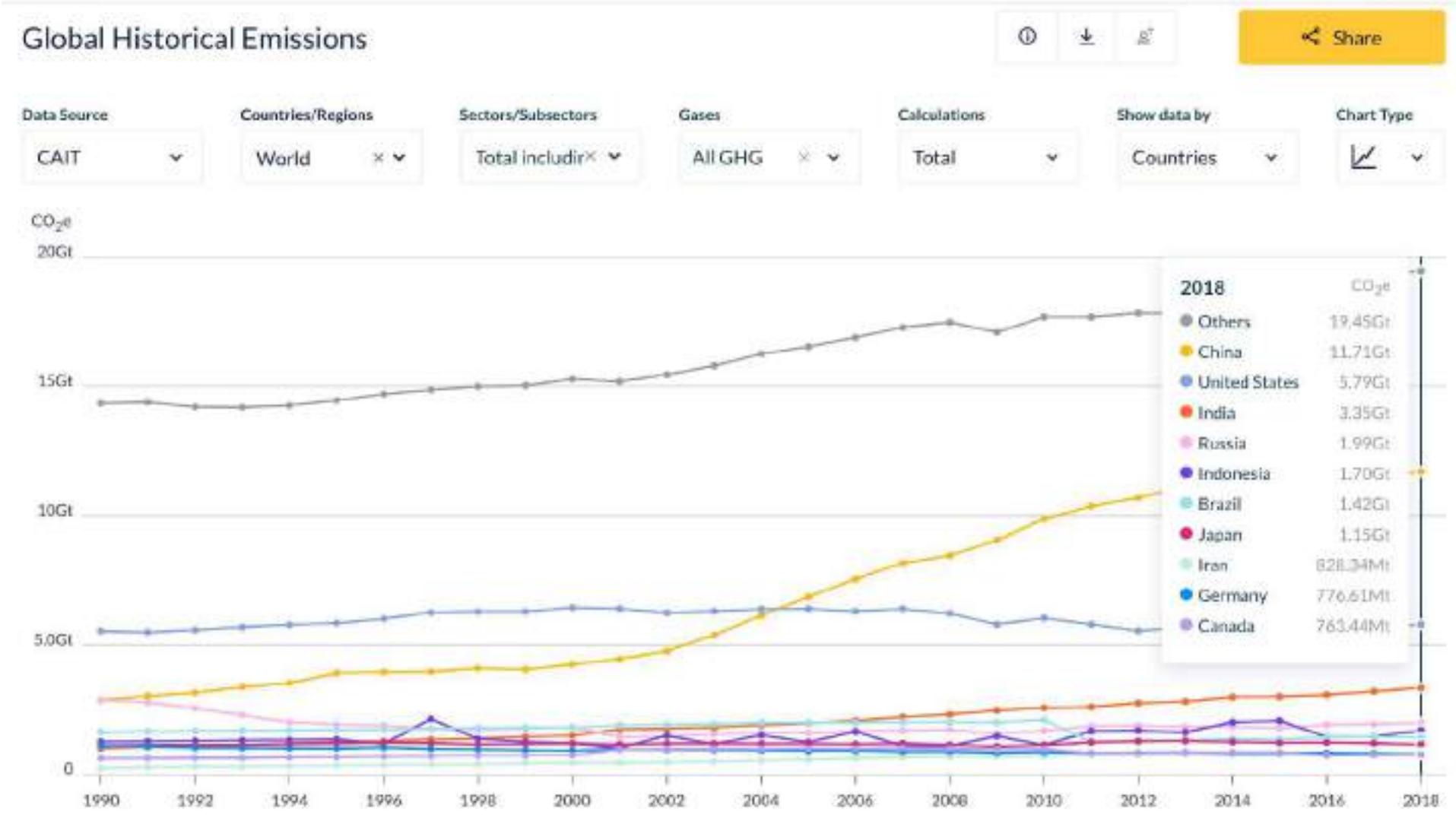
https://www.climatewatchdata.org/ghg-emissions

Armenia Population



[Source Link]

The World CO2e Gt (1000*Mt)



https://www.climatewatchdata.org/ghg-emissions

The World CO2e Gt (1000*Mt)

48.9Gt = 48,900,000,000 t

Population: 7.6 billions = 7,600,000,000 people

48.9/7.6=6.4 tons CO2e pp

Please be aware numbers change when you change source of data!

https://www.climatewatchdata.org/ghg-emissions

Other climate regulations in Armenia

POLICIES AND PROGRAMS

National Adaptation Policies and Strategies

TABLE 5. Key national adaptation policies, plans and agreements

Policy/Strategy/Plan	Status	Document Access
The Disaster Risk Management National Strategy and the Action Plan	Enacted	April, 2017
Nationally Determined Contribution (NDC) to Paris Climate Agreement	Submitted	2015
Technology Needs Assessment Report	Completed	December, 2015
National Communications to the UNFCCC	Four submitted	Latest: May, 2020
National Platform for Disaster Risk Reduction	Enacted	2010
National Adaptation Plan (NAP) to Advance Medium and Long-Term Adaptation Planning in Armenia	In development phase	
National Forest Policy and Strategy	Enacted	January, 2015
Wildfire Action Management Plan	Enacted	May, 2013
EU-Armenia Comprehensive and Extended Partnership Agreement (CEPA) (2017).	Adopted	September, 2017
Eu-Armenia Cepa Roadmap	Adopted	2018
Green City – Yerevan Action Plan	Enacted	2017

https://climateknowledgeportal.worldbank.org/sites/default/files/2021-06/15765-WB_Armenia%20Country%20Profile-WEB_0.pdf

Question time!

What are the main SDGs Armenia want to focus on?

https://sdgs.un.org/goals

Sustainable Development Goals 2015-2030 in Armenia

ARMENIA VOLUNTARY NATIONAL REVIEW 2020

OVERCOMING CHALLENGES

There are still gaps in the process of SDG implementation. The efforts need to be doubled to overcome the general challenges revealed during the review process, such as:

- legislation concerning equality (SDG 10)
- mitigation and adaptation to climate change (SDG13)
- energy diversification (SDG 7)
- sustainable use of natural resources (SDG 12)
- judicial reform (SDG 16)

https://sustainabledevelopment.un.org/content/documents/26133Armenia_VNR_main_messages.pdf

Globalfields