G20

DATA GAPS INITIATIVE 3

Recommendation 5: Forward Looking Physical and Transition Risk Indicators

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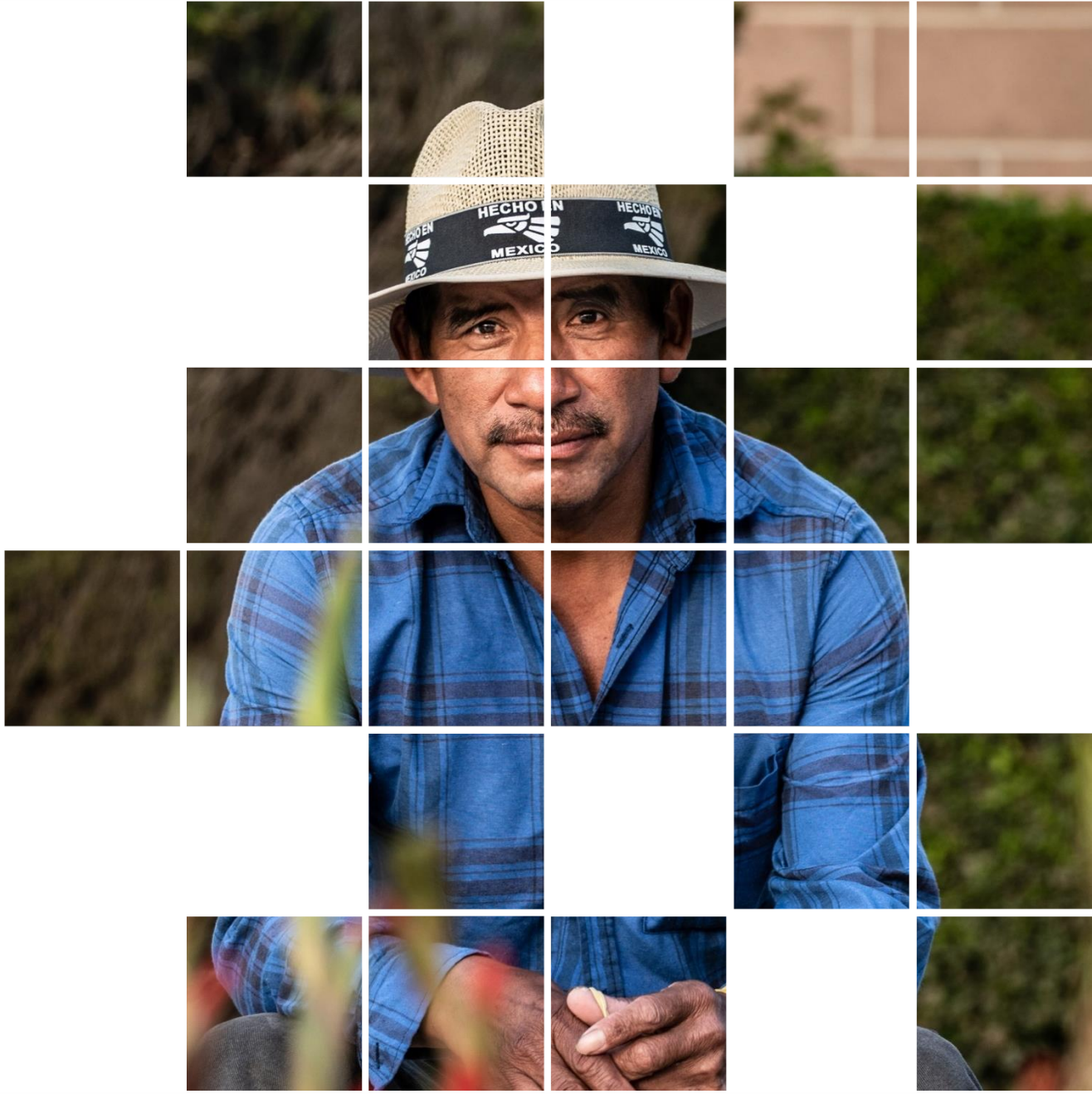


Outline of the Presentation

- Background and Progress
- Methodological Framework
- Stocktaking Survey
- Global Datasets and Geospatial Tool for Climate Risk Indicators
- Timeline

Background

Monitoring risks from frequent and severe climate hazards (e.g., floods, droughts) and the impact of climate policy on populations, national wealth, and firms' stability is essential. These indicators help policymakers determine climate policy timing and scope and develop support for climate action.

Policy Driver

- **Quantify and monitor forward-looking risks to help prioritize and develop support for climate action.**

Statistical Output

- **Forward looking physical and transition risk indicators (risk to populations, economic growth, financial markets, profits, ecosystems, etc.)**

Co-lead organizations

- **IMF**
- **BIS**
- **ECB**
- **FSB**
- **OECD**
- **World Bank**

Overview of the Progress

Global DGI Conference
June 2023

Consultation on Concept note with co-leads
October 2023

Virtual workshop
Nov 2023

Written consultation on concept note
Jan 2024

Survey: Consultation with co-leads
April 2024

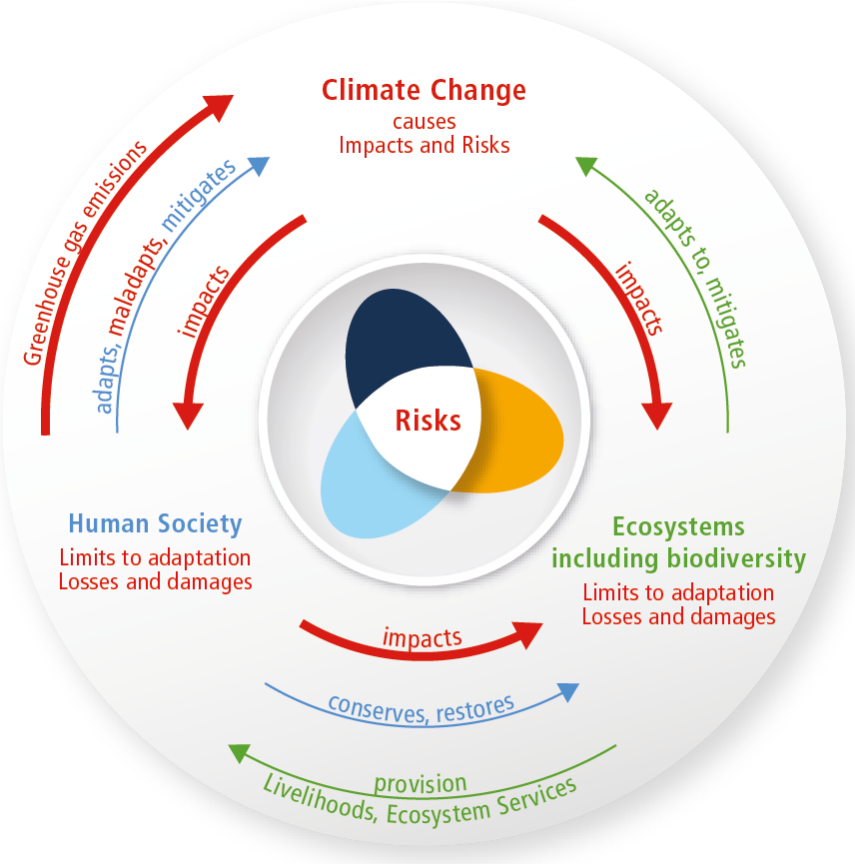
Launch of the survey
June 2024

Concept Note:
- Key definitions
- Methodological framework
- Examples of data sources and indicators

Survey:
- State of progress in countries
- Assessment of needs

Methodological Framework

Concept Note: Measuring Forward-Looking Physical and Transition Risks



Source: IPCC

- A **concept note** was prepared and presented, and the **definitions and methodological framework** were broadly agreed upon.
- The risk assessment framework integrates **hazard × exposure × vulnerability** with **climate scenarios**.
- Climate risks result from a dynamic interactions between **climate-related events (e.g. hazards) with the exposure and vulnerability to these events.**
  - **Climate related event:** The potential occurrence of a physical event (flood, extreme weather etc.) or transition related event (e.g., policy measures).
  - **Exposure:** The presence in places/ settings that could be adversely affected.
  - **Vulnerability:** The propensity or predisposition to be adversely affected.

Methodological Framework
Climate Scenario Analysis

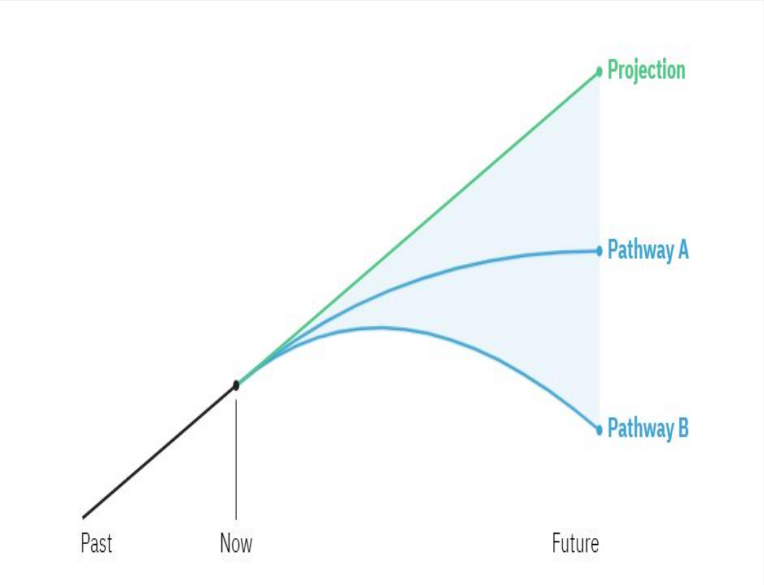
- The distinct nature of climate risks poses a challenge to **standard risk assessment approaches**.
  - Climate risks have **long time horizons with high uncertainty** about how policy and socioeconomic factors might evolve;
  - they are complex, **varying from region to region and sector to sector**.

- **Climate scenario analysis** provides a useful **"what if"** framework to climate risk assessment**.**

- Climate scenarios not about predicting the future but come in the form of **projections of what can happen or pathways of how to reach certain goals**.

- Combining and interacting **climate-related physical or transition events, vulnerability measures** and **exposures** with **future climate scenarios** provide the basis for forward looking physical and transition risk indicators**.**

Figure: Forward Looking Projections and Pathways



Stocktaking Survey

- A survey was launched earlier in **June** to assess countries' actions and needs, helping to define core indicators.

Questionnaire coverage

1. Physical Risk

2. Transition Risk

3. Global Data and CD needs

Hazard

+ Exposure

+ Vulnerability

Risks to:
Population, GDP, built- up areas (properties, public infrastructure etc.), firms, financial sector

Survey tool

Survey on Forward-looking Physical and Transition Risk Indicators: DGI-3 Recommendation 5

This survey is designed to gather information about recent developments in participating economies on forward-looking physical and transition risk indicators. Additionally, it seeks to assess preferences regarding the types of indicators to be included as core indicators within the scope of Recommendation #5 (Rec#5).

Start Survey

Definitions

G20
DATA GAPS INITIATIVE 3

Concept Note: Data Gaps Initiative (DGI 3) Recommendation 5

Forward-looking Physical and Transition Risk Indicators

(Preliminary Draft)

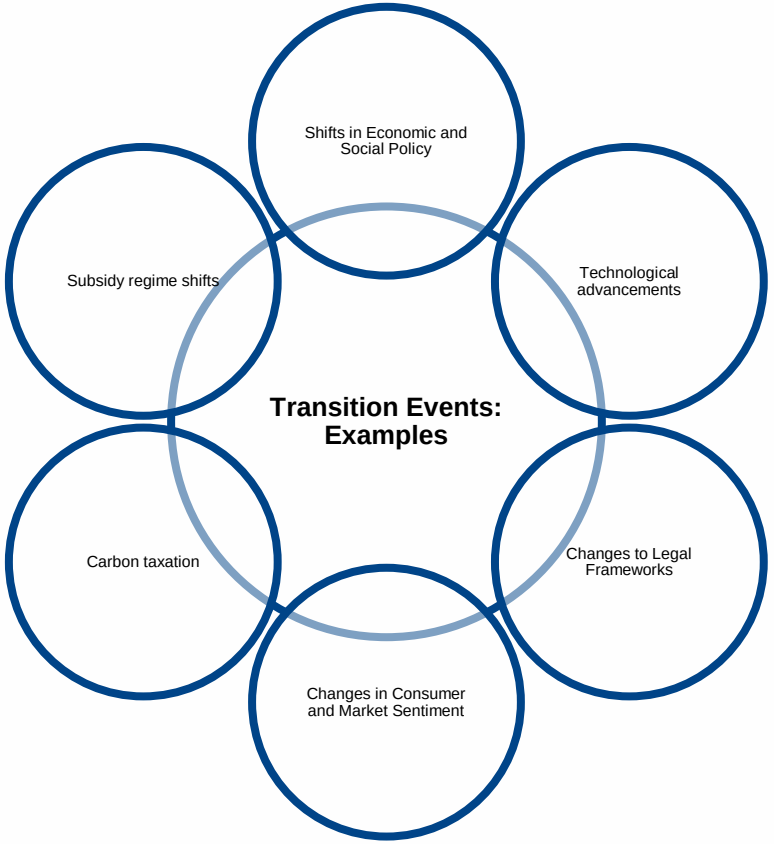
I. INTRODUCTION

1. **The new Data Gaps Initiative – DGI 3 – endorsed by the G20 Finance Ministers and Central Bank Governors in November 2022 highlighted the need for robust, comprehensive, and comparable data for the most urgent policy needs.** The IMF staff, in close cooperation with the Financial Stability Board (FSB) Secretariat and the Inter-Agency Group on Economic and Financial Statistics (IAG), and in consultation with participating economies, have developed a workplan calling for better data to understand climate change, together with indicators that cover income and wealth, financial innovation and inclusion, access to private and administrative data, and data sharing.

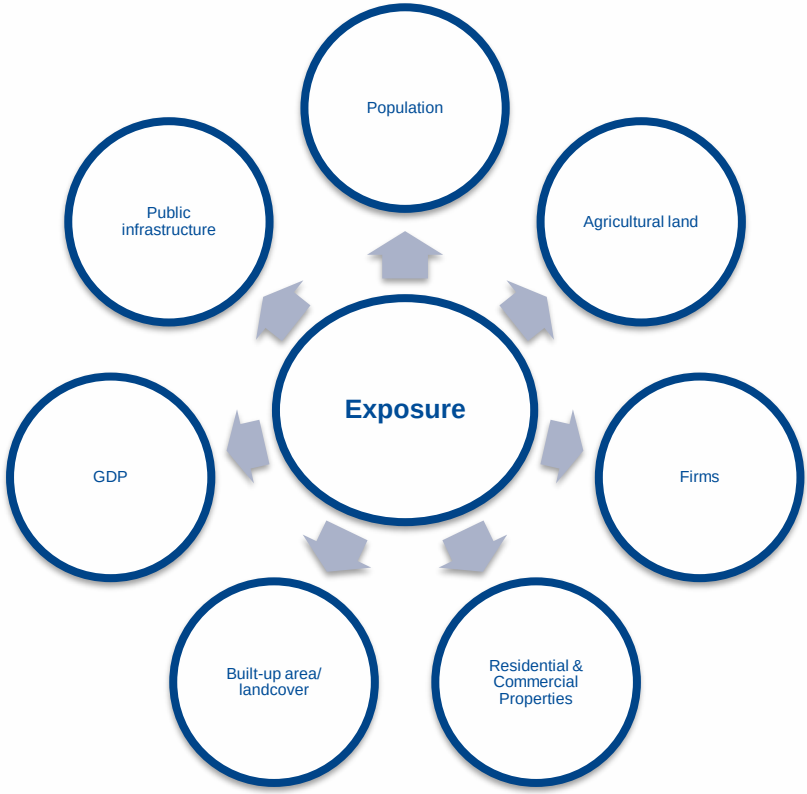
Key Survey Topics: Assessment of Progress and Needs

Physical Events

Transition Events



Exposure



Vulnerability: Information on mitigation factors, including social, cultural and natural.

Global Datasets and Geospatial Tool for Climate Risk Indicators

Work is in progress to develop a tool that **integrates different layers on hazards and exposure** to identify hot spots for risk using global data sets that are publicly available

The Artificial Intelligence for Environment and Sustainability (**ARIES**) presents a promising platform for integrating data on hazards, exposure and vulnerability

Working with many institutions to develop this information

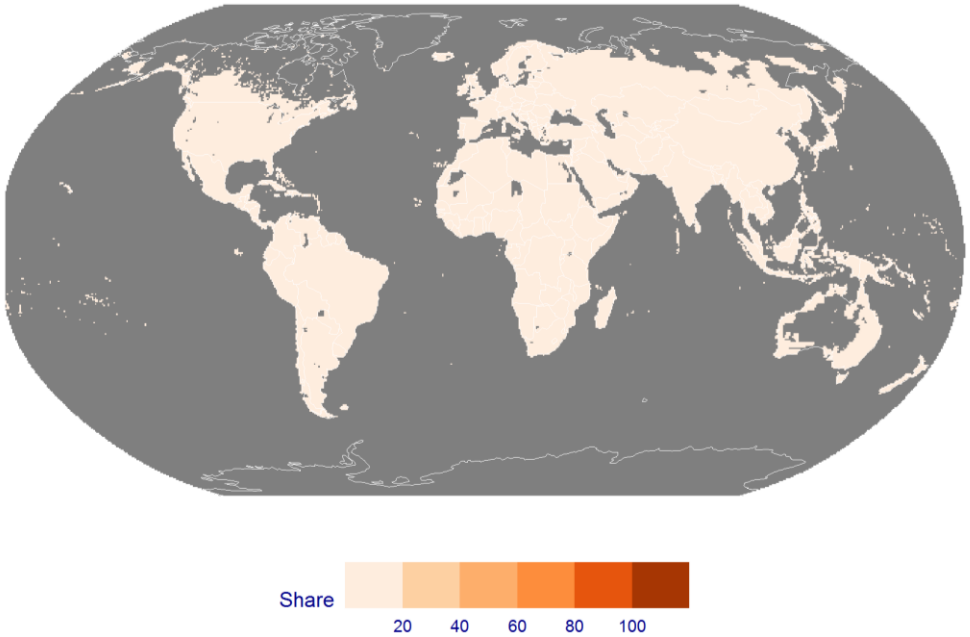
- World Bank (Climate Change Knowledge Portal); European Space Agency; Basque Center for Climate Change; UN World Meteorological Organization; and others

Support countries to develop its own estimates **building on global data sets**.

Population Exposure Heat Stress

Share of population (SSP245 projection)

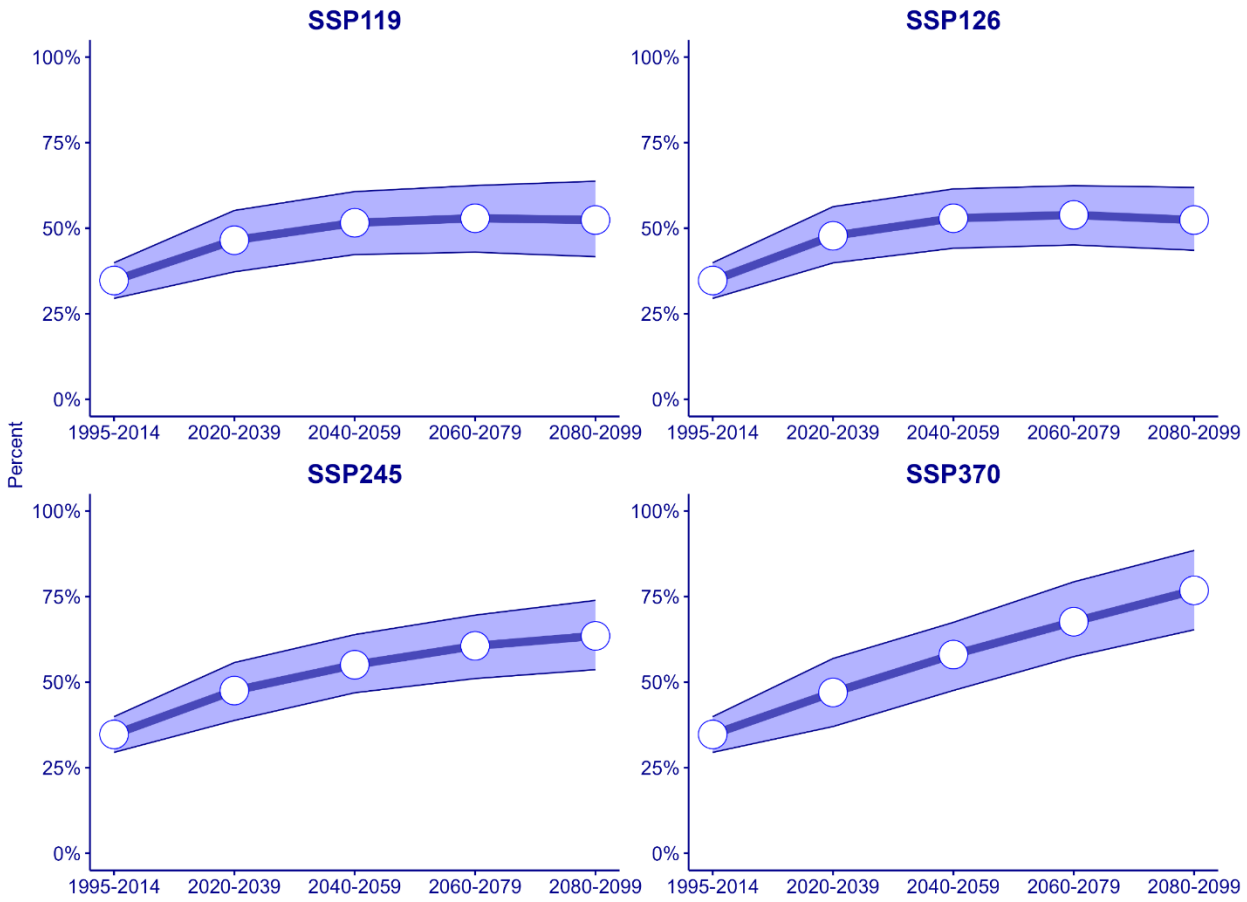
Exposed to at least 10 days with daily maximum temperature >= 35°C
2010



IMF|Statistics computations using World Bank Climate Change Knowledge Portal gridded climate data

G20 Countries

Percent of population exposed to at least 10 days with daily maximum temperature >= 35°C
CMIP6 Ensemble

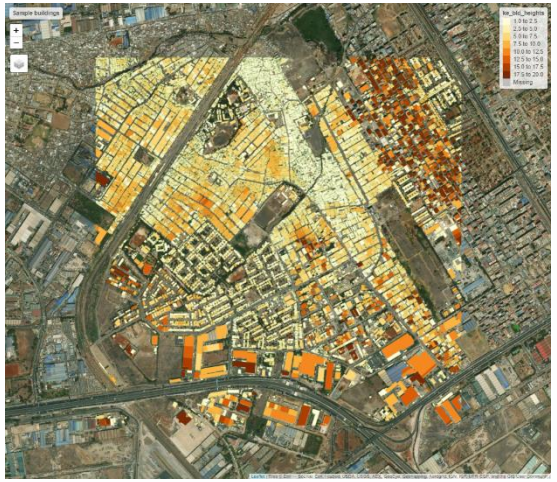


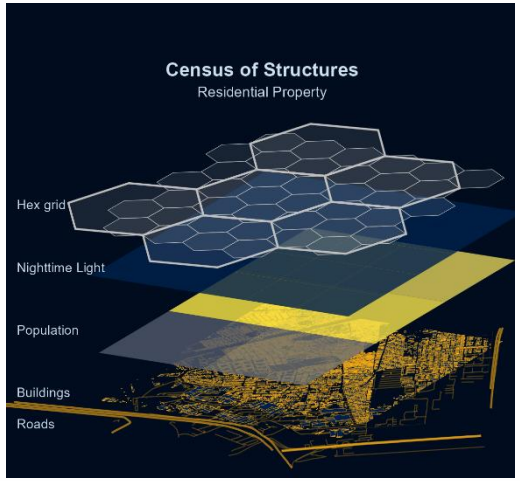
Source: IMF|Statistics computations using World Bank Climate Change Knowledge Portal gridded climate data.
Original citation: Eyring, V. et al. (2016): Overview of the Coupled Model Intercomparison Project Phase 6 (CMIP6) experimental design and organization, Geosci. Model Dev., 9, 1937-1958, DOI: https://doi.org/10.5194/gmd-9-1937-2016
Note: solid line represent median, ribon shades represent the 10th and 90th percentiles.

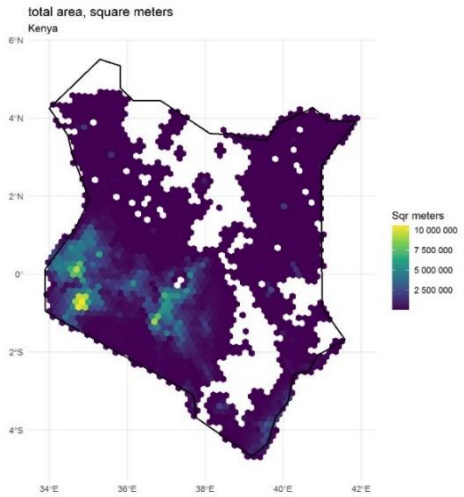
Leverage open-source data to close climate data gaps

- Census of residential properties = Building footprint + Gridded population + Nighttime light
  - Location of buildings
  - Area in square meters
  - Value of property

- Application: Accurately assess climate risk, impacts, and damage to properties







Updated Timeline

TASK	TYPE OF ENGAGEMENT	CY2023				CY2024				CY2025				CY2026			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1.Governance: Establish Task Team.	Consultation	X															
2. Design: IAG Lead Agencies and other relevant stakeholders develop a concept note on the indicators.	Consultation		X														
3. Design: IAG Lead Agencies organize a workshop with G20 and participating economies to discuss the concept note; agree on action plan.	Workshop			X	X												
4. Design: IAG Lead Agencies conduct a survey seeking feedback from G20 and participating economies on the concept note.	Consultation					X	X	X									
5. Design: IAG Lead Agencies draft methodological framework and reporting templates based on feedback received.	Consultation							X	X	X	X						
6. Process: Interested G20 and participating countries develop experimental estimates.	Data Submission										X	X					
7. Process: IAG Lead Agencies organize a workshop with G20 and participating economies to discuss experimental estimates and update the methodological framework, indicators and reporting templates.	Workshop											X					
8. Process: IAG Lead Agencies guide G20 and participating economies to compile the forward looking physical and transition risk indicators.	Consultation												X	X	X	X	
9. Process: G20 and participating economies compile and submit forward looking physical and transition risk indicators using draft reporting templates.	Data Submission												X	X	X	X	
10. Design: IAG Lead Agencies organize a workshop with G20 and participating economies, for countries to share their experiences, finalize the methodology, compilation and dissemination guidance.	Workshop															X	
11. Disseminate: G20 and participating economies and IAG Lead Agencies disseminate forward looking physical and transition risk indicators per country commitments.	Data Dissemination															X	X

Thank You!

Questions?

PEOPLE PLANET ECONOMY

DELIVERING INSIGHTS FOR ACTION