IPAC

Progress towards net-zero greenhouse gas emissions and a more resilient economy by 2050

Meeting of UN Expert Group on Environment Statistics, 25 October 2022

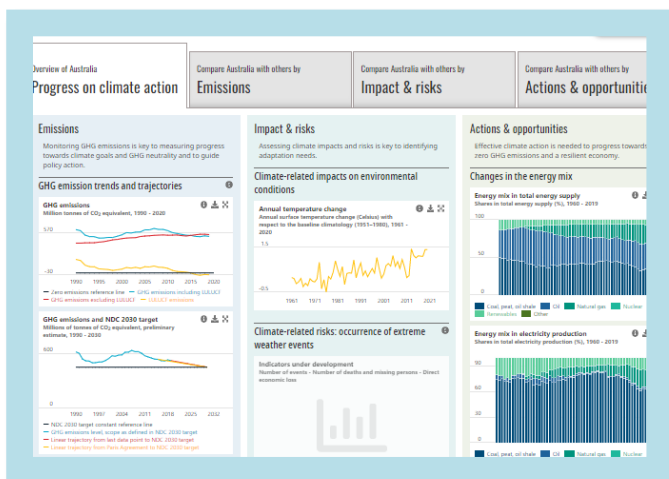**Myriam Linster, OECD Environment Directorate**

Monitoring progress towards climate objectives and a resilient economy

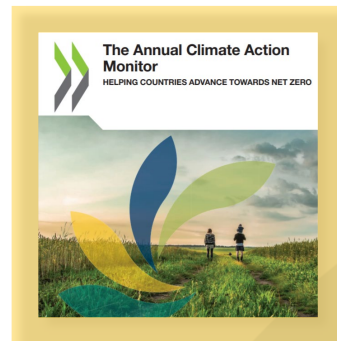**IPAC - International Programme for Action on Climate**

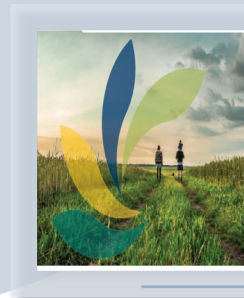IPAC

CLIMATE ACTION DASHBOARD
Selected core indicators

Annual
CLIMATE ACTION MONITOR

The Annual Climate Action Monitor
HELPING COUNTRIES ADVANCE TOWARDS NET ZERO

Progress towards
- ✓ **National and Regional climate policy goals**
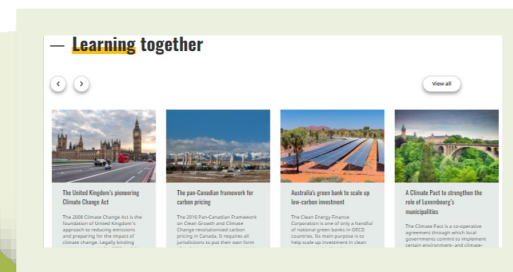- ✓ **NDCs, NAPs, LTS**

COUNTRY NOTES

- Policy advice
- Good practices
- Environmental Performance Reviews
- Economic surveys
- In-depth energy reviews

Set of climate-related indicators
Core & other indicators

Learning together

online interactive platform for
DIALOGUE & MUTUAL LEARNING
across countries

Climate-related data - IPAC database
Indicator development agenda

IPAC Technical Expert group (TEG)

IPAC

Monitoring progress towards climate objectives and a resilient economy

IPAC - Indicator Architecture and hierarchy

OECD data repository for climate action: OECD, IEA, ITF, NEA statistical databases, accounts, indicators
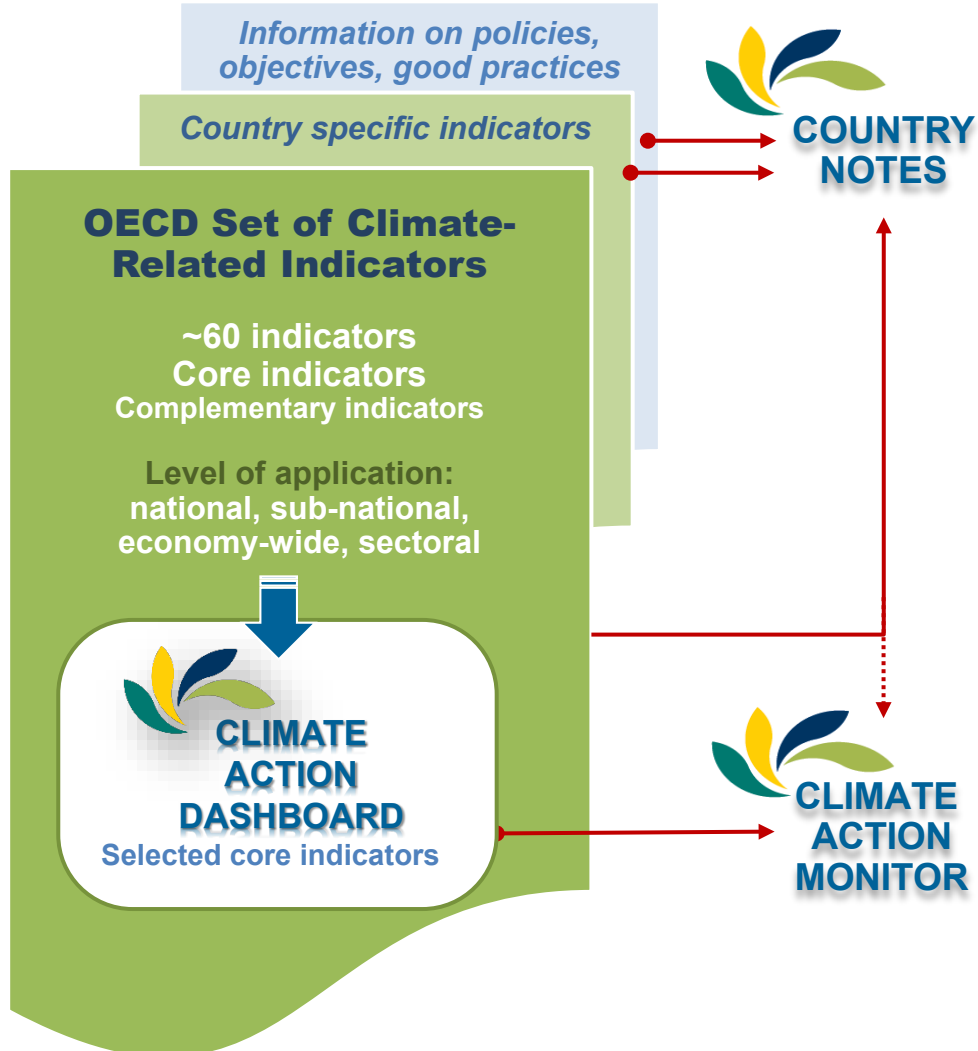
Environment at a Glance

Core Set of Environmental Indicators

Sectoral Environmental indicators

Green Growth indicators

UN climate indicators
UNECE, UNSD, SDG

Information on policies, objectives, good practices

Country specific indicators

OECD Set of Climate-Related Indicators

~60 indicators
Core indicators
Complementary indicators

**Level of application:
national, sub-national,
economy-wide, sectoral**

CLIMATE ACTION DASHBOARD

Selected core indicators

COUNTRY NOTES

CLIMATE ACTION MONITOR

Core indicators

Indicators that are needed to respond to the main policy questions and that help provide the big picture of climate-related conditions, trends and actions.

A subset of core indicators features in the Climate Action Dashboard.

Particularly useful to inform the Annual Climate Monitor and provide a common denominator for the IPAC country notes.

Other relevant indicators
Complementary
Contextual
Country specific

Indicators that accompany or complement the message conveyed by "core" indicators.

- *Provide additional detail (sub-national detail, sectoral detail) or cover additional aspects and country-specific circumstances.*

- *Help balance the messages conveyed. Particularly useful for supporting the analysis in the IPAC Country Notes.*

Indicators that provide general background information to facilitate interpretation in the appropriate socio-economic or global context.

Monitoring progress towards climate objectives and a resilient economy
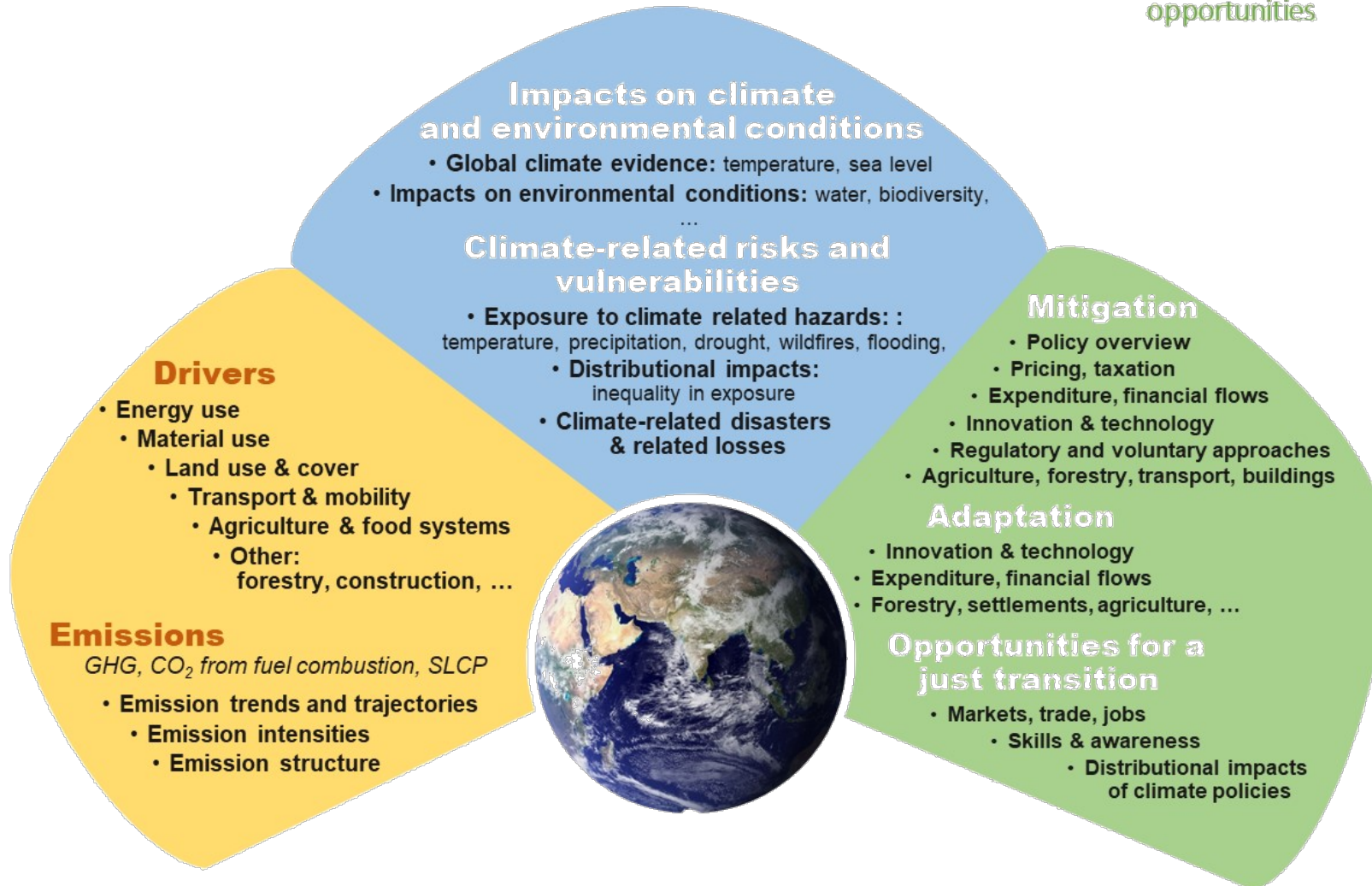
IPAC - Conceptual measurement framework

IPAC

Pressure
Emissions & drivers

State
Impacts & risks

Response
Policies, actions, opportunities

Impacts on climate and environmental conditions
- **Global climate evidence:** temperature, sea level
- **Impacts on environmental conditions:** water, biodiversity, …

Climate-related risks and vulnerabilities
- **Exposure to climate related hazards:** : temperature, precipitation, drought, wildfires, flooding,
- **Distributional impacts:** inequality in exposure
- **Climate-related disasters & related losses**

Drivers
- Energy use
- Material use
- Land use & cover
- Transport & mobility
- Agriculture & food systems
- Other: forestry, construction, …

Emissions
GHG, CO_2 from fuel combustion, SLCP
- Emission trends and trajectories
- Emission intensities
- Emission structure

Mitigation
- Policy overview
- Pricing, taxation
- Expenditure, financial flows
- Innovation & technology
- Regulatory and voluntary approaches
- Agriculture, forestry, transport, buildings

Adaptation
- Innovation & technology
- Expenditure, financial flows
- Forestry, settlements, agriculture, …

Opportunities for a just transition
- Markets, trade, jobs
- Skills & awareness
- Distributional impacts of climate policies

Adapted PSR model
- Integrating IPCC topics
- Considering the economic, social, environmental and policy aspects of CC

→ Enables a coherent narrative across dimensions

→ Provides a basis for analytical work and policy evaluation

Indicators selected according to their
- Policy relevance and utility for users
- Analytical soundness
- Measurability

Coherent with:
- Climate change related statistics and indicators (UNECE)
- Global Set of Climate Change Statistics and Indicators (UNSD)

An indicator development agenda to advance the measurement

Data gaps

Progress to be made

Data quality

Geographical scope

- Development priorities set in 2021
  – **GHG emission trends and targets**; trajectories
  – GHG emissions: Demand-based; Quarterly; Subnational
  – **Climate-related risks: exposure to climate-related hazards**
  – Climate-related vulnerability: socio-economic inequality in exposure to climate-related hazards
  – **Climate actions and policies measurement framework**
  – Climate-related government expenditure and public budgets
  – Climate adaptation policy instruments
  – Climate-related innovation
  – Consistency of financial flows with climate policy goals
  – Labour market developments

First results available; Ongoing or planned

MEASURING EXPOSURE TO CLIMATE-RELATED HAZARDS

Measuring climate hazards and exposure - Objectives

- **Objective**
  - Fill gaps in internationally harmonised data on exposure to major climate hazards
  - Propose a suite of harmonised indicators for use in international work

- **Key features**
  - Internationally comparable indicators
  - Global geographic coverage
  - Sub-national detail
  - Time series
  - Timeliness

- **Approach**
  - Identify good data sources (Earth observation) with high spatio-temporal resolution and frequent updates
  - Use a diversity of analytical methods that allow for the inclusion of other hazards in the future.

Measuring climate hazards and exposure – scope of work

Extreme temperature
- % population exposed to *n* number of hot days (Tmax > 35°C)
- % population exposed to *n* number of tropical nights (Tmin > 20°C)
- % population exposed to *n* number of days identified as a hot day & a tropical night
- Population-weighted average of number of days with strong, very strong & extreme heat stress
- Percentage of population exposed to *n* number of icing days (Tmax < 0°C)

Extreme precipitation
- % cropland exposed to number of days when total daily precipitation amount > 99th percentile

Drought
- Average cropland soil moisture anomaly

Wildfire
- % population located in areas at risk of burning
- % forested areas at risk of burning

Wind threats
- % population exposed to violent storms per year
- % built-up area exposed to violent storms per year
- % population exposed to cyclones with different return periods (50, 100, 250, 500 years)
- %f built-up area exposed to cyclones with different return periods (50, 100, 250, 500 years)

Flooding (coastal, river)
- % population exposed to flooding with different return periods (10, 25, 50, 100 years)
- % built-up area exposed to flooding with different return periods (10, 25, 50, 100 years)
- % cropland exposed to flooding with different return periods (10, 25, 50, 100 years)

Measuring climate hazards and exposure - example of results

Across the IPAC countries, days with above-average temperatures are increasing …

and more people experience extreme temperatures

Measuring climate hazards and exposure: examples of results
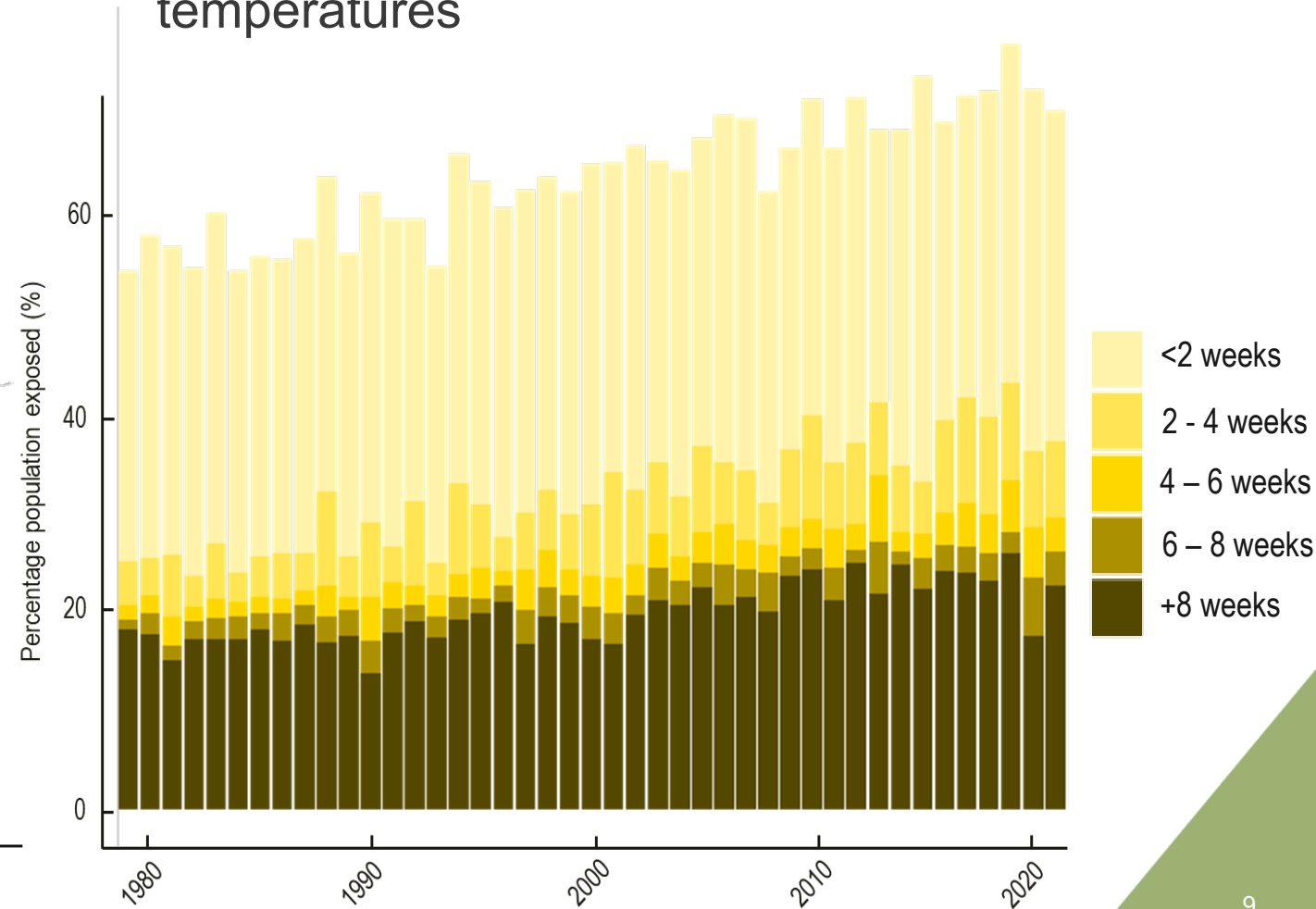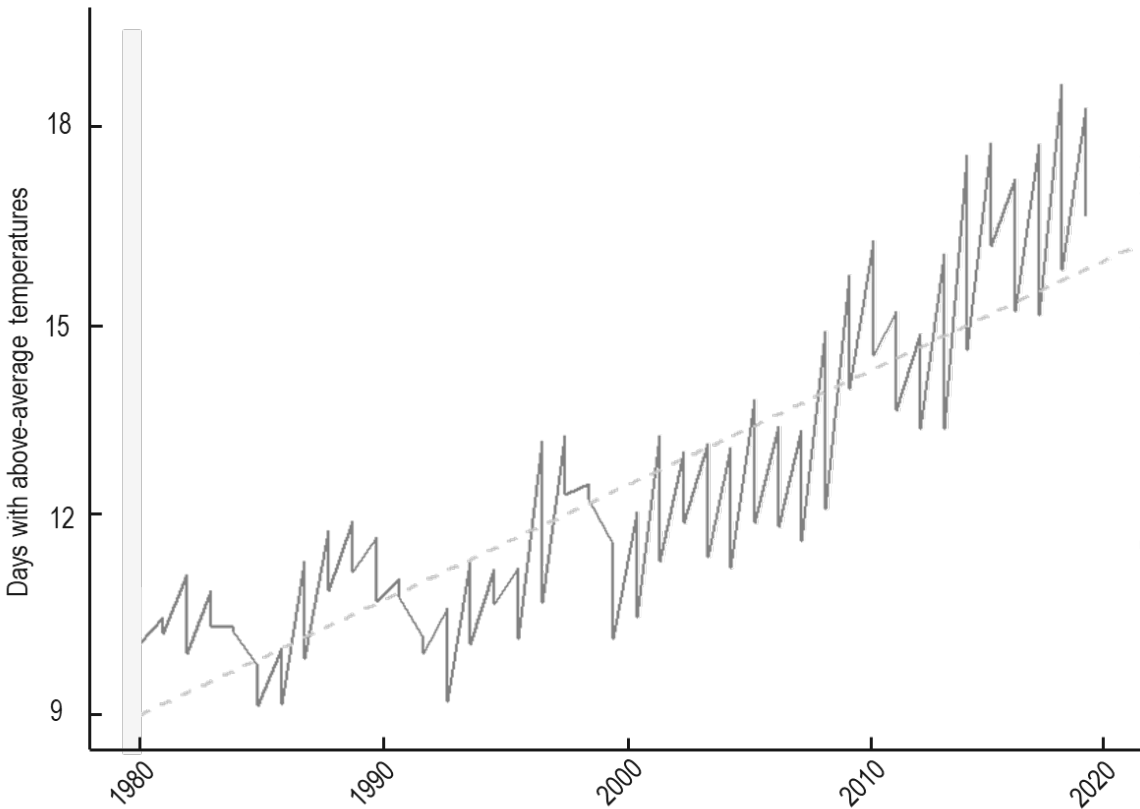
Across the IPAC countries, extreme drought on cropland is increasingly common…
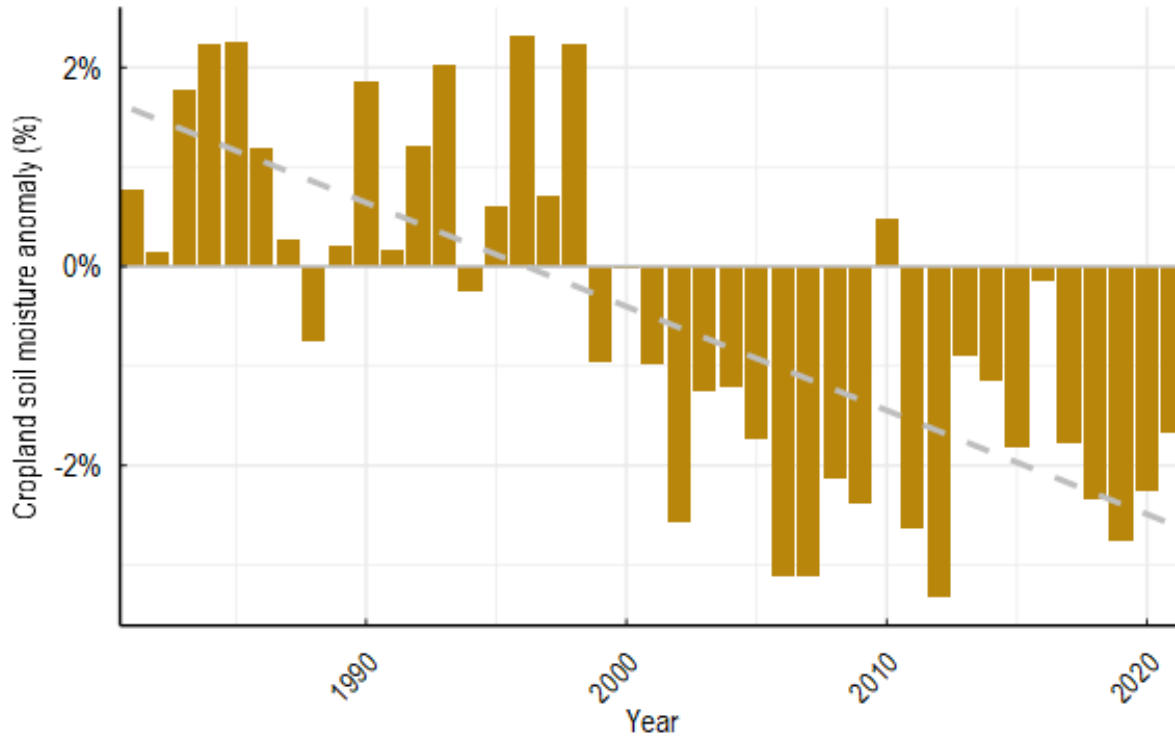
while forest exposure to wildfire danger is increasing.
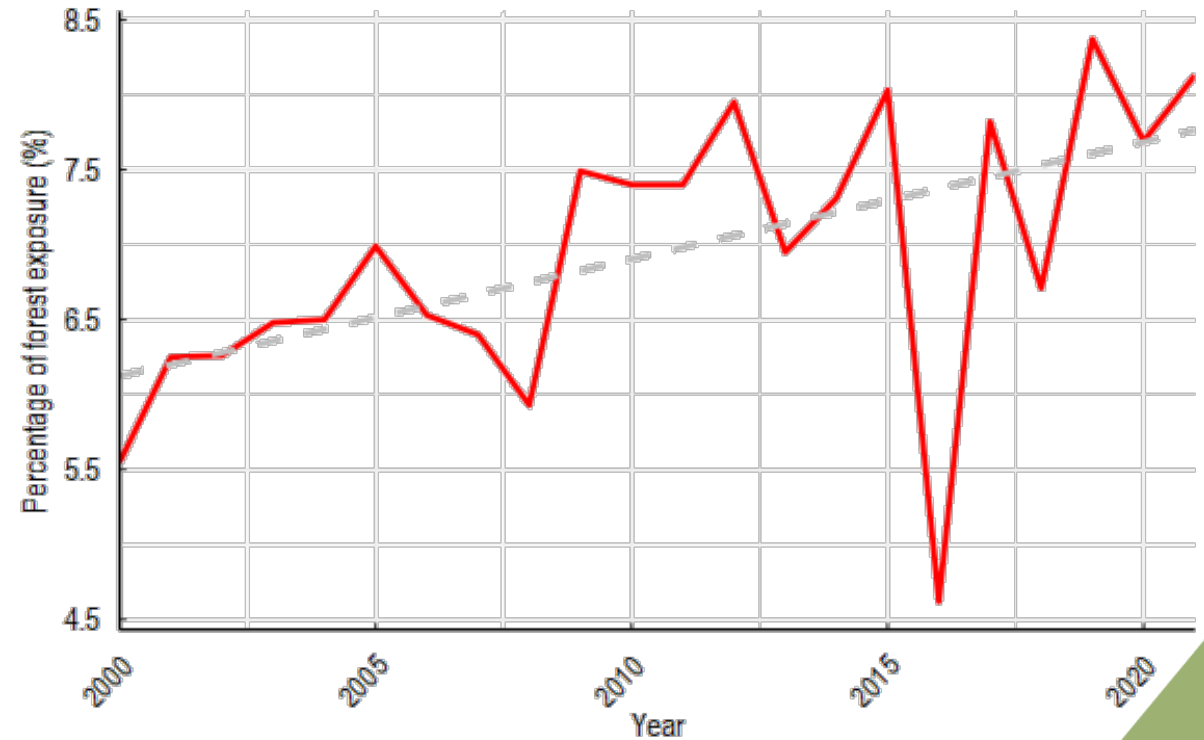
Measuring climate hazards and exposure - example of results

Declines in average cropland soil moisture over an entire country can hide more severe local declines.

Average cropland soil moisture anomaly 2017-21

Drier

No change

Wetter

11
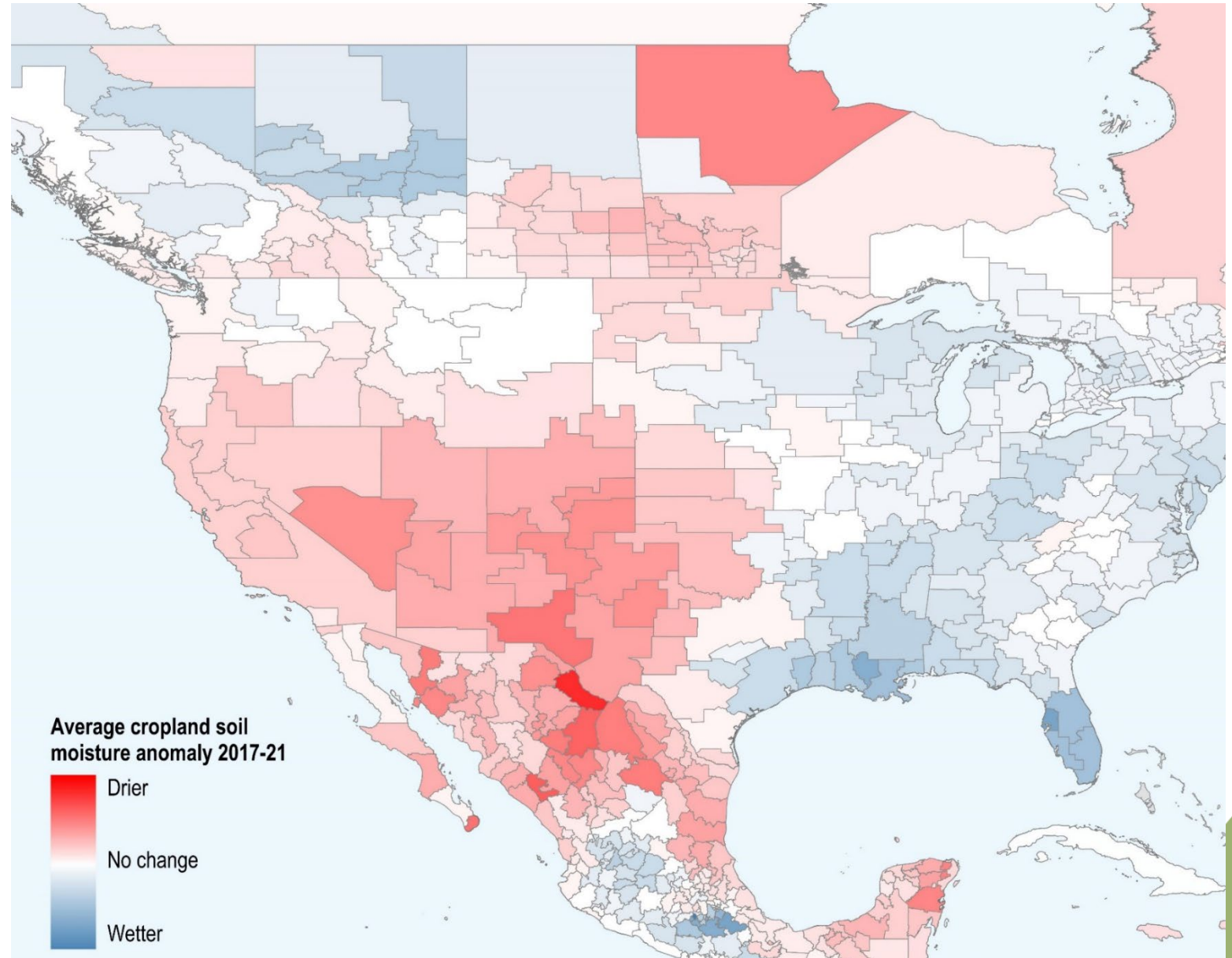
THE CLIMATE ACTIONS AND POLICIES MEASUREMENT FRAMEWORK (CAPMF)

CAPMF – A tool for monitoring policy adoption

Objectives

Measure governments' climate action

Track progress

Statistical and econometric **analyses**

Characteristics

➤ Most comprehensive database

➤ 128 policy variables

➤ 51 countries + EU27

➤ 2000 – 2020

➤ Focus on mitigation

➤ Coherent with IPCC and UNFCCC

➤ Broad range of policy instruments

➤ All data publicly available

The Climate Action and Policies Measurement Frawework

Sectoral policies

Sector	Market-based instruments	Non-market based instruments
Electricity	• **Carbon pricing** (ETS, carbon and fuel taxes, FFS reform or removal) • **RES support** (FiT, auctions, RPS)	• **Bans and phase outs** of coal power plants • **Air pollution standards** coal plants • **Planning for renewables**
Transport	• **Carbon pricing** • **Congestion charge**	• **Fuel economy standards** • **Energy labels** • **Bans and phase outs of ICE** • **Public rail investment** • **Motorway speed limits**
Buildings	• **Carbon pricing** • **Financing mechanisms for EE** (e.g. preferential loans for retrofits)	• **MEPS appliances** • **Energy labels** appliances • **Building energy codes** • **Bans and phase outs** of fossil-based heating
Industry	• **Carbon pricing** • **Financing mechanisms for EE**	• **MEPS industrial motors** • **Energy efficiency** mandates
Agriculture	• E.g. fertiliser taxes	• E.g. fertiliser and nitrate regulations
LULUCF	• E.g. payments for conservation	• E.g. forest as protected area
Waste	• E.g. landfill taxes	• E.g. extended producer responsibility schemes

Cross-sectoral policies

GHG emission targets
• Net-zero target (e.g. year, coverage, legal status)
• NDC target (e.g. coverage of sectors and GHG)

Public RD&D expenditure
• 6 categories (e.g. energy efficiency, renewables, nuclear, hydrogen, CCS)

Fossil fuel production policies
• FFS reform for fossil fuel production
• Bans and phase outs of fossil fuel extraction
• Policies to reduce fugitive methane emissions (e.g. restriction on flaring)

Climate governance
• Independent climate advisory body

Climate finance
• E.g. mandatory disclosure of climate risk information for companies

International policies

International co-operation
• Participation in key international climate treaties
• Participation in international climate initiatives (e.g. Climate and Clean Air Coalition)
• Participation in international emissions pricing from aviation (e.g. CORSIA) or shipping

International public finance
• Climate-related ODA
• Banning export credits for unabated coal plants
• Banning public finance of fossil fuels abroad

GHG emissions data and reporting
• GHG emissions reporting and accounting
• UNFCCC evaluation of Biennial (Update) Reports
• Submission of key UNFCCC documents (e.g. National Communications, GHG Inventory)

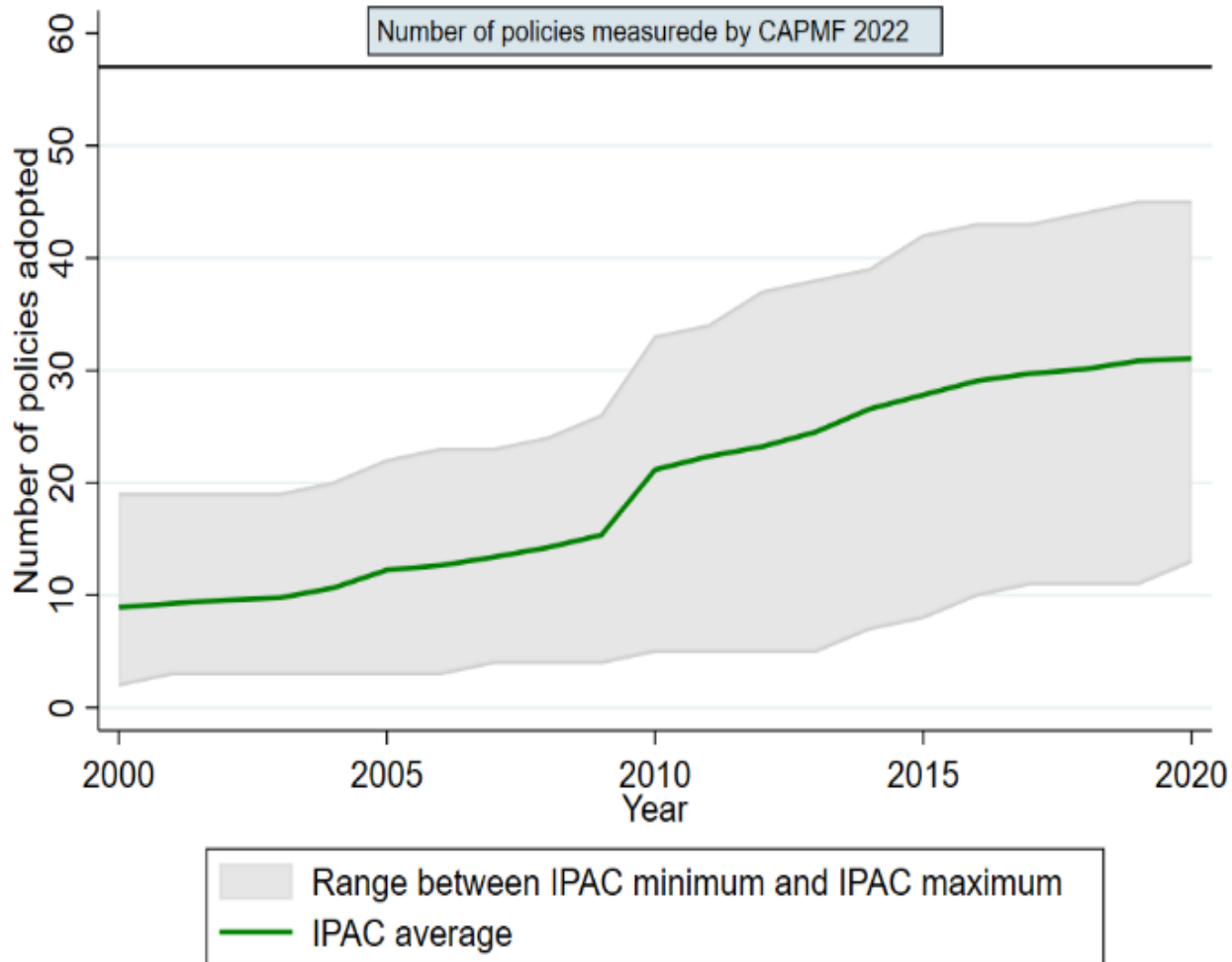|	
2022	Included in this version
2023/2024	Future work program

14

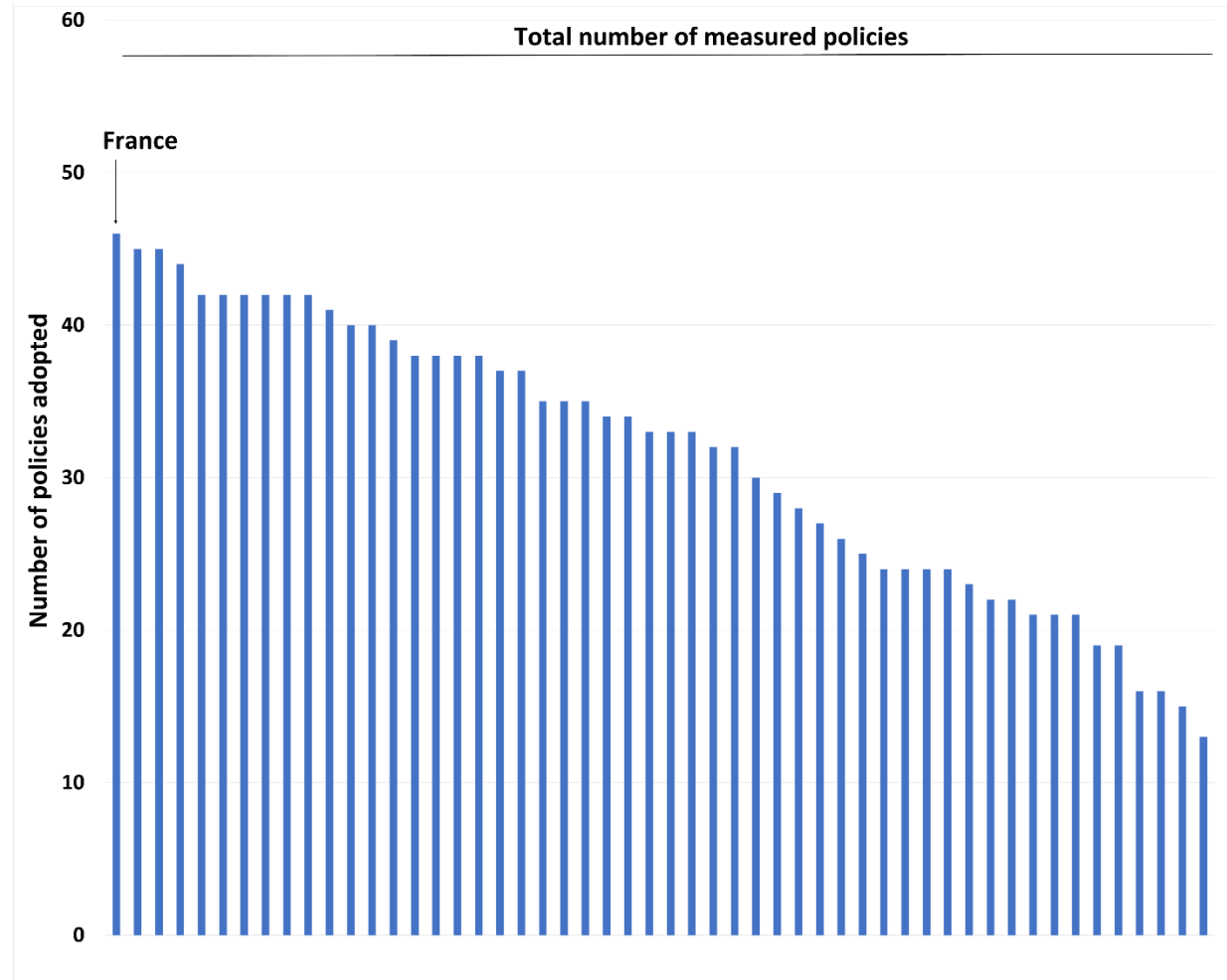# CAPMF – A tool for monitoring policy adoption – preliminary results
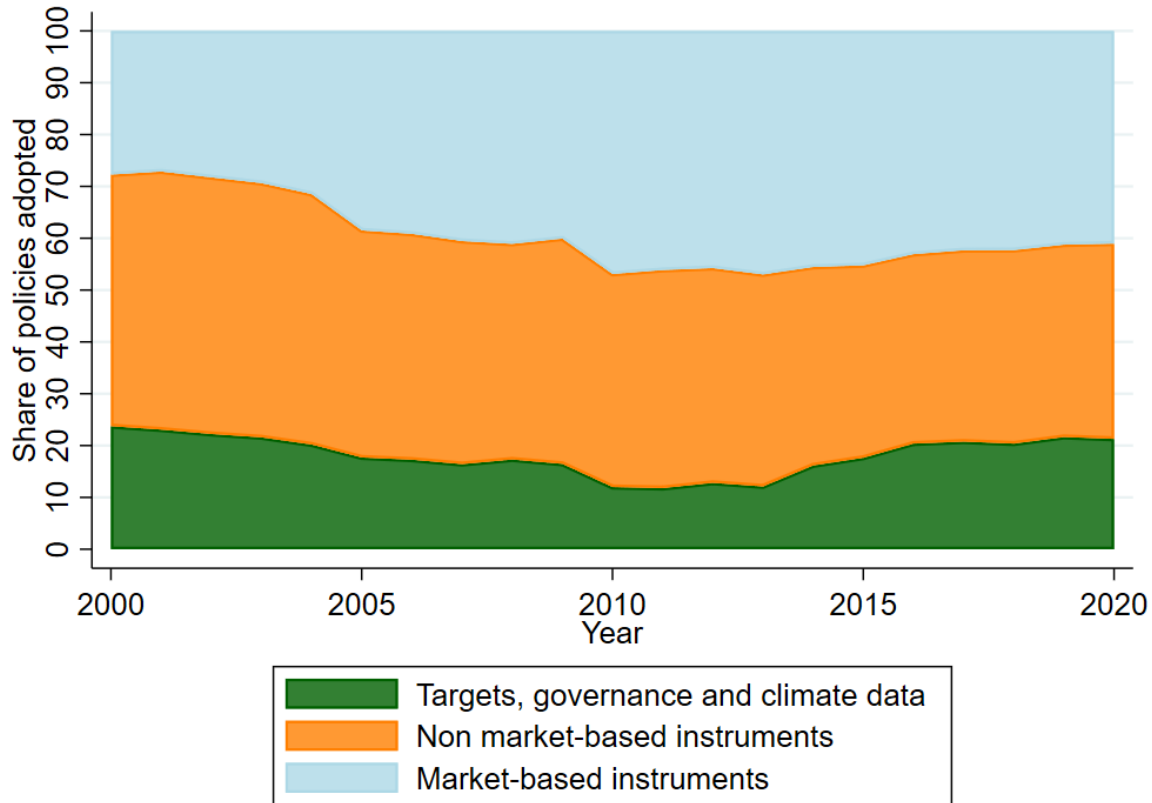
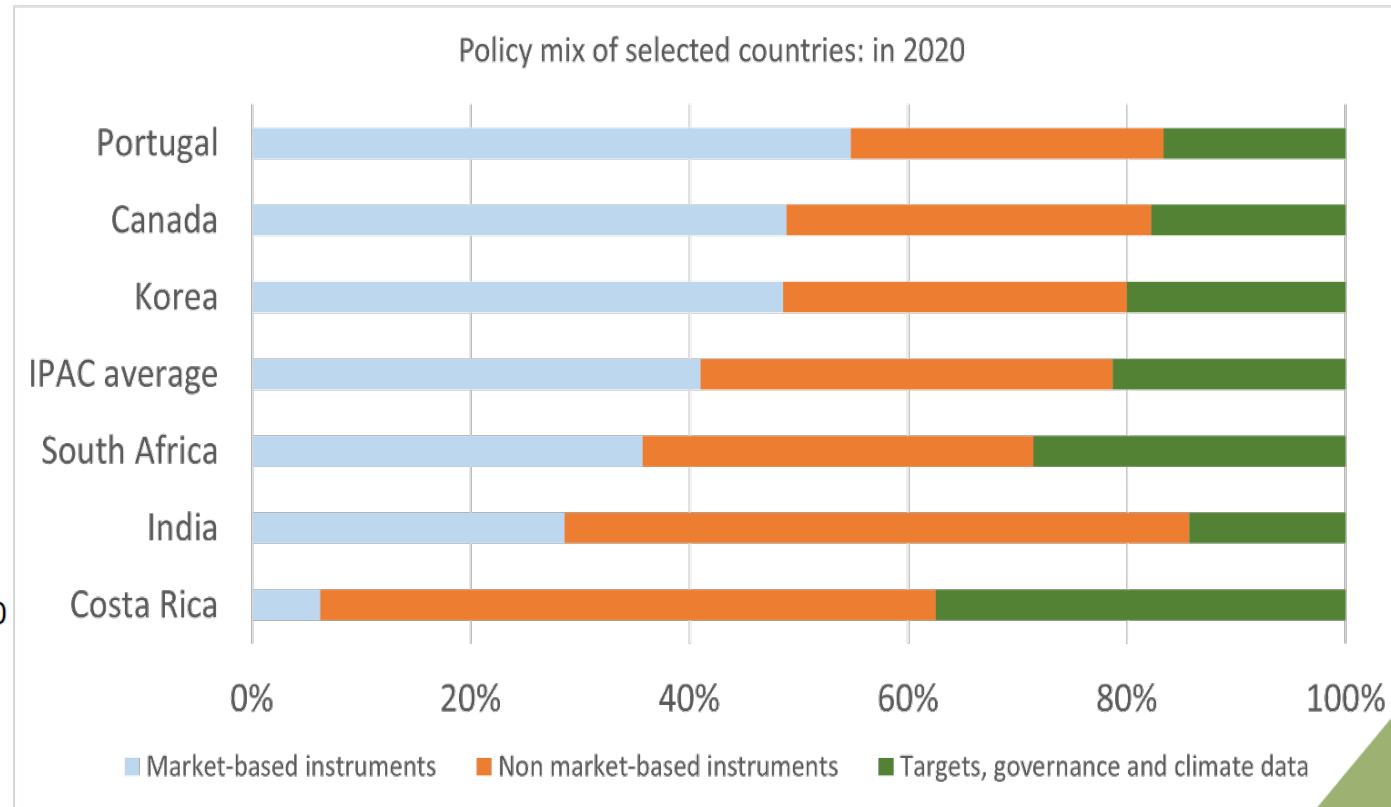## Development of policy adoption over time
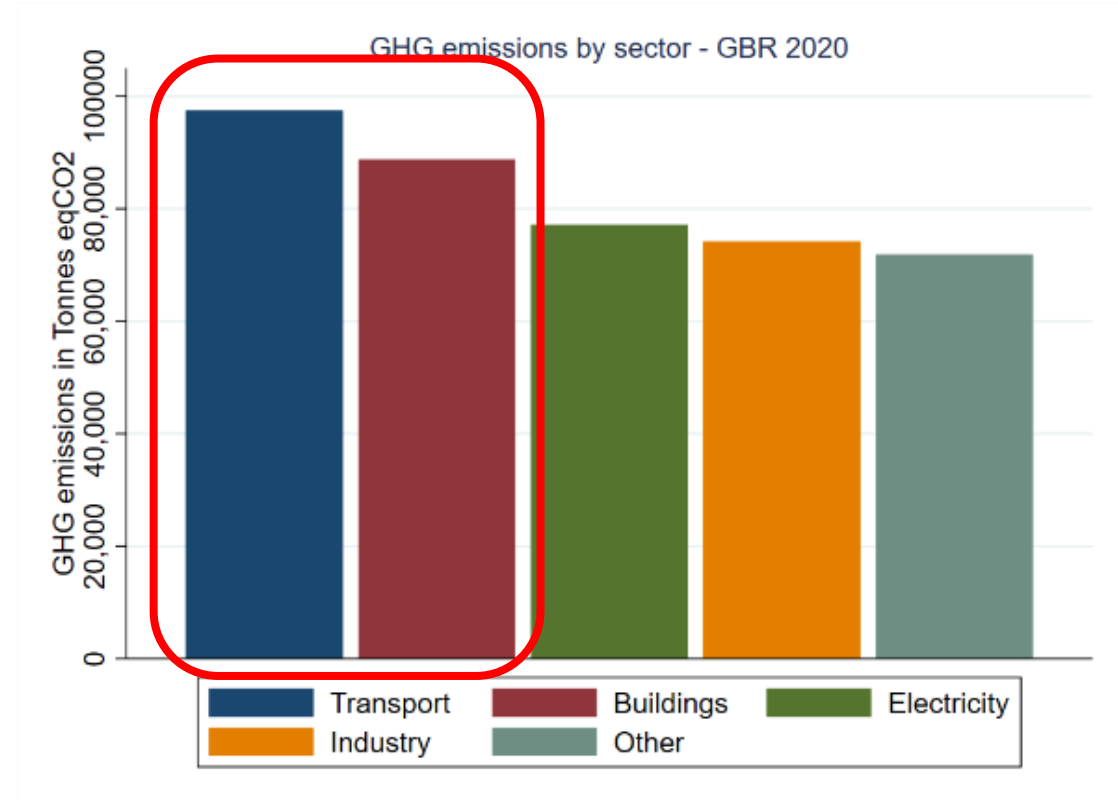

Policy adoption in 2020

CAPMF – A tool for monitoring policy adoption – preliminary results

Policy mix of IPAC average: 2000-2020

Policy mix of selected countries: 2020

Policy mix of selected countries: in 2020

CAPMF – Application as a diagnostic tool - preliminary illustration

Policy alignment and policy options in the United Kingdom
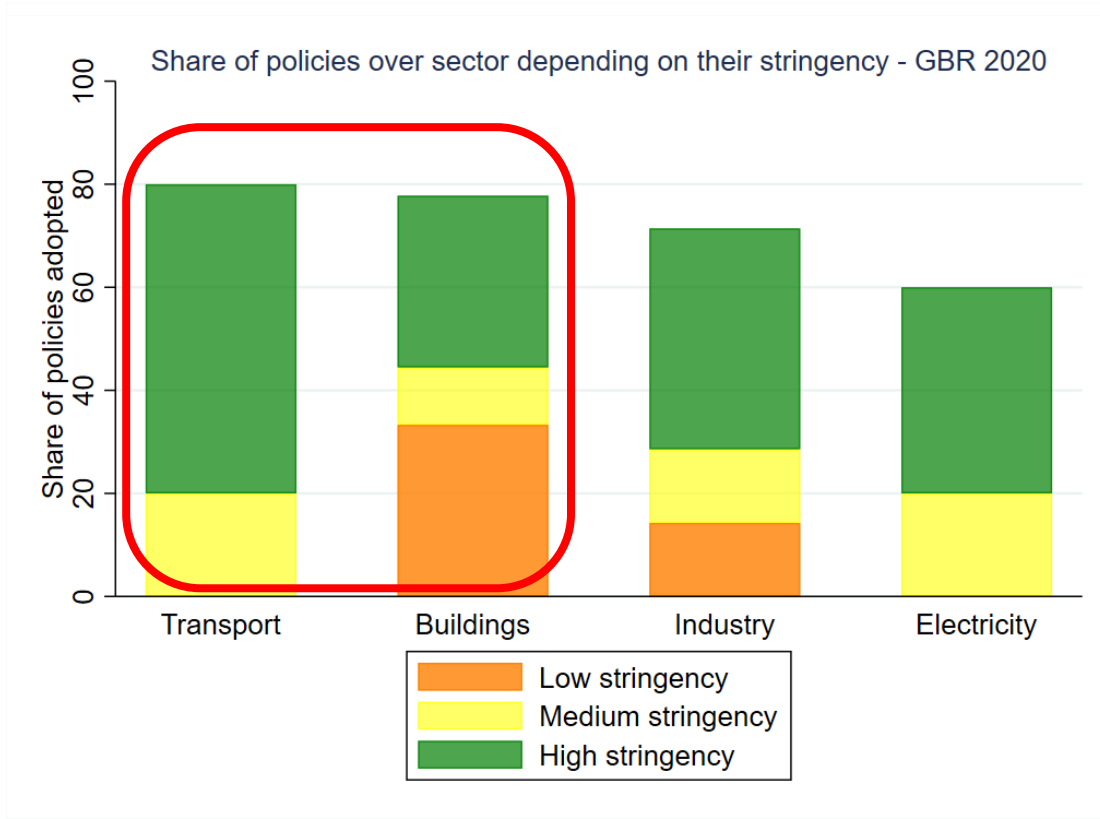
EMISSION TRENDS AND TARGETS

GHG emission trends and targets – preliminary results

- **OECD methodology for quantifying 2030 NDC GHG emission targets and monitoring progress in a harmonised way**
  - transforms a country's 2030 NDC target as reported to the UNFCCC into a physical emissions level (in CO2e).
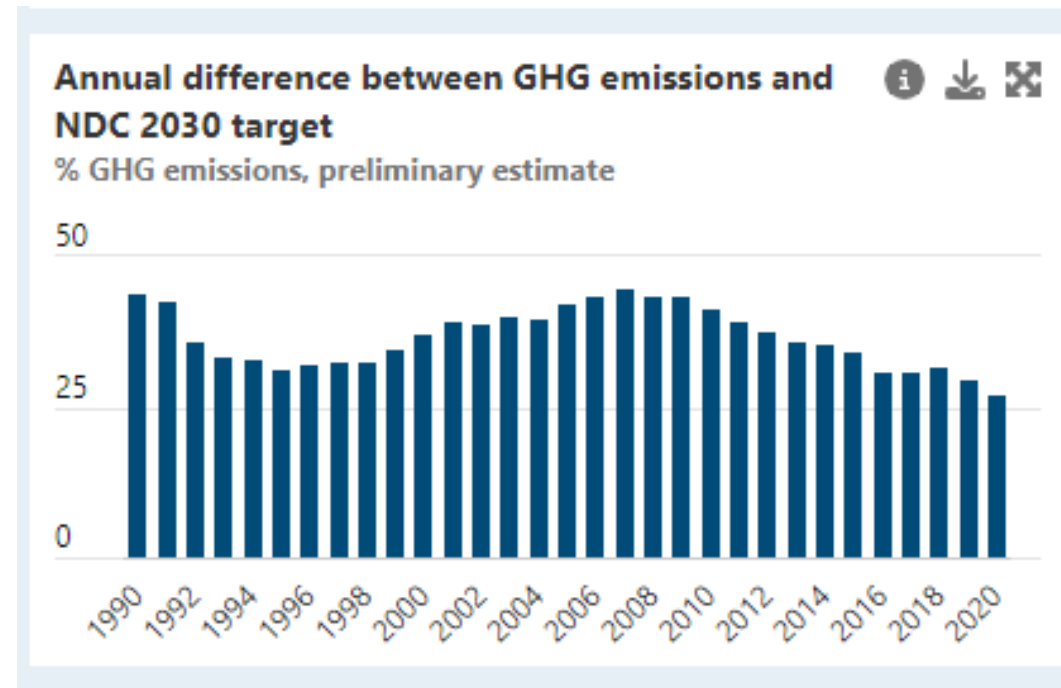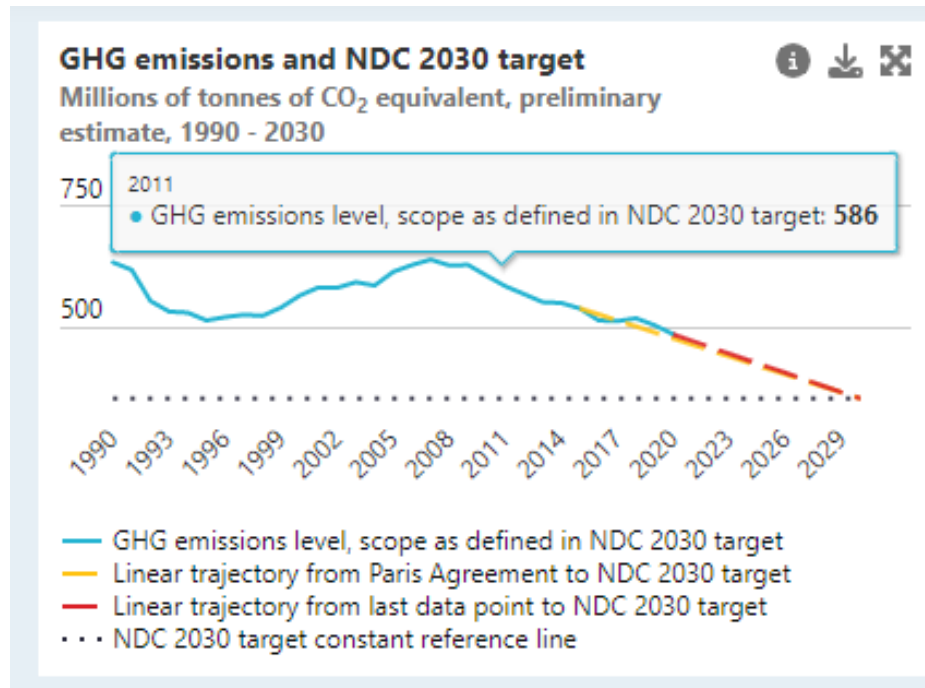
NEXT STEPS

Next steps

- **Feature new indicators in the Climate Action Dashboard**
  - Emission trends compared to targets
  - Selected hazard indicators; policy overview drawing on the CAPMF

- **OECD reports to be published and presented at COP27**

- **Continue work to refine the indicators and improve their relevance**
  - Gain feedback on **relevance and interpretability** through use in policy work: Climate Action Monitor, Country Notes and OECD country reviews
  - Further develop the **narrative** accompanying the Dashboard and indicator set

- **Continue to develop new and innovative indicators**

Monitoring progress towards climate objectives and a resilient economy

The Climate Action Dashboard – interactive webpage

IPAC

THANK YOU!

IPAC
https://www.oecd.org/climate-change/IPAC/

IPAC DASHBOARD
https://www.oecd.org/climate-action/ipac/dashboard

https://www.oecd.org/action-climat/ipac/tableau-de-bord