

# OS-Climate Overview

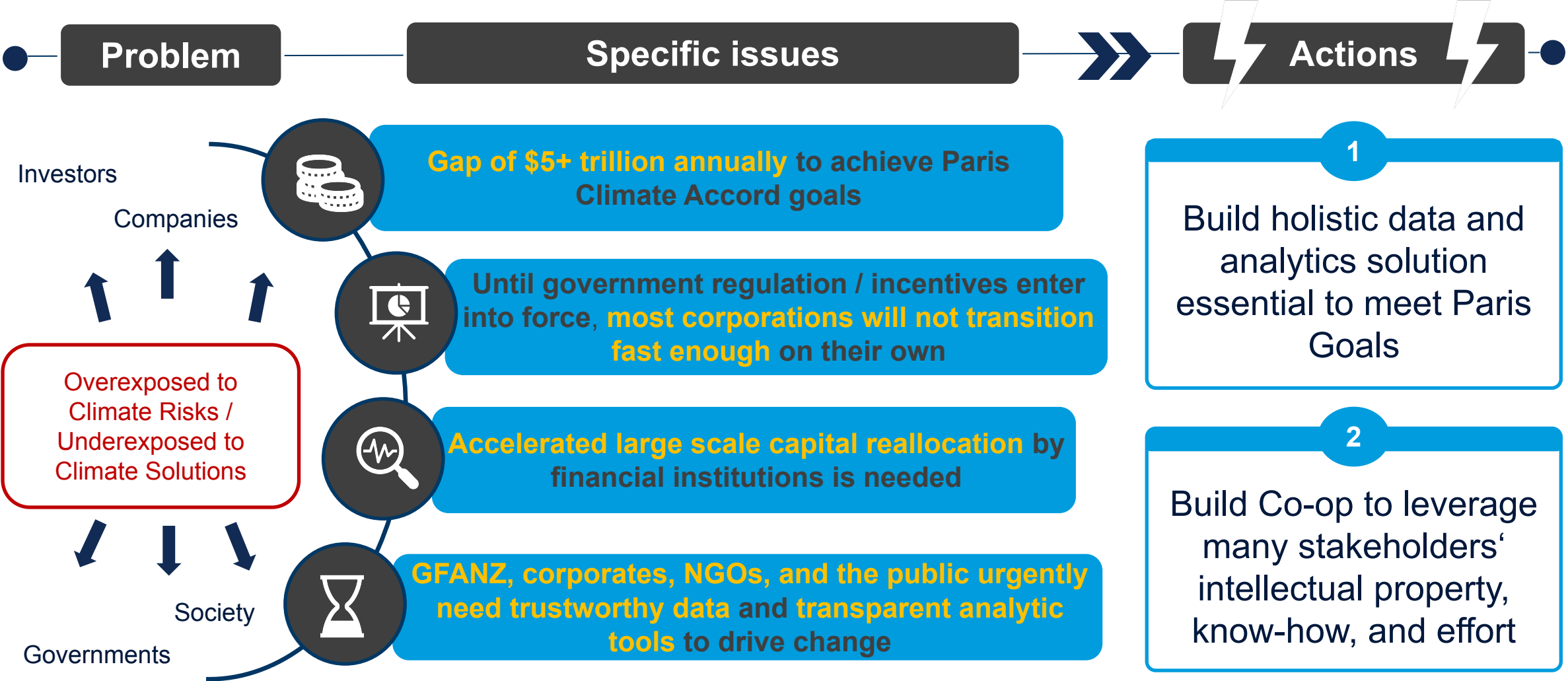
**Matt Sandoe:** Chief of Staff and Physical Risk & Resilience Lead  
(seconded from BNP Paribas)

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OS-C

# OS-C proposes concrete measures to address climate risks and opportunities

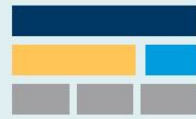


# OS-Climate Approach

To address the data & analytics issues which stymie investments towards Paris Climate Accord goals, OS-C is applying the community-based, open-source approach that has enabled breakthroughs in Life Sciences & Technology Sector (e.g., mapping human genome, COVID vaccine).



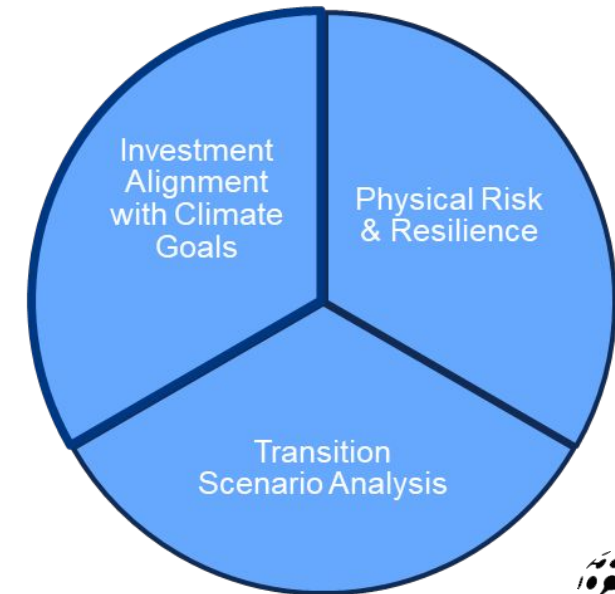
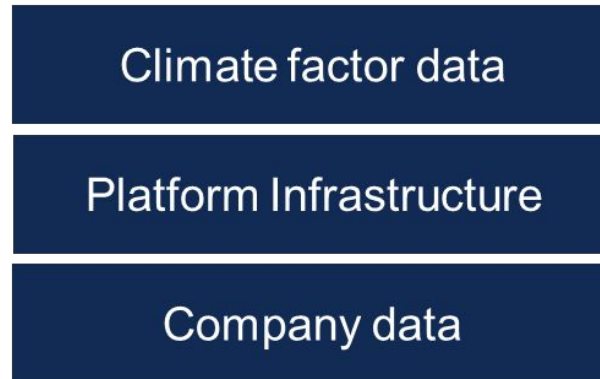
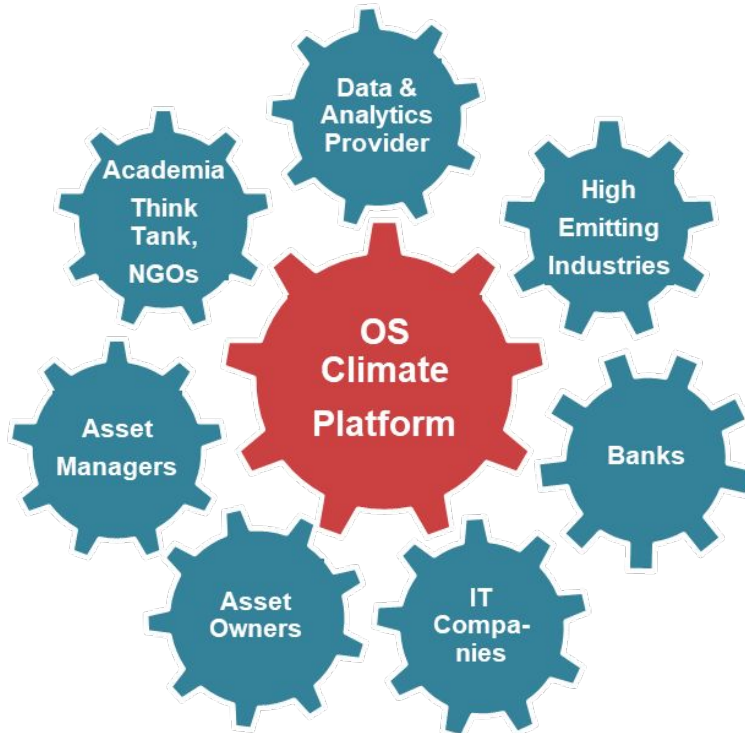
**OPEN SOURCE  
COMMUNITY**



**GLOBAL DATA  
COMMONS/  
DATA MESH**



**ANALYTICAL  
TOOLS**





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# Members & Partners

## PREMIUM MEMBERS



BNP PARIBAS



Goldman Sachs

## GENERAL MEMBERS



BNY MELLON



LSEG

THE NET-ZERO ASSET OWNER ALLIANCE



Red Hat

S&P Global

## ASSOCIATE MEMBERS

ENERGYECOLAB



CLIMATE POLICY INITIATIVE



OpenEarth



World Benchmarking Alliance



CLIMATE RISK RESEARCH FOUNDATION



INSTITUT POLYTECHNIQUE DE PARIS



Enabling global identity  
Protecting digital trust



FINPUBLICA  
Finance Leaders For The Public Good

## PARTNERS & DATA PROVIDERS



riskthinking.AI

URGENTEM!

World Resources Institute



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# Four Primary Workstreams

In addition to 2 smaller scale workstreams covering

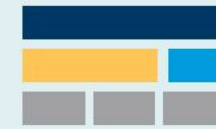
- Data Extraction: [link](#).
- PCAF: following [link](#).



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# 1. Data Commons / Data Mesh



GLOBAL DATA  
COMMONS /  
DATA MESH

## Goal: In Data We Trust

- Implement [Red Hat's Data Mesh Pattern](#), an architecture developed with OS-Climate members, to address data management challenges.
- Red Hat created an open-source blueprint that manages 'data as code', bridging climate-related data gaps.
- Increases Availability – data is accessed through a data exchange (presents commercial layer opportunity)
- Improves Reliability – managing 'data as code' increases data quality, audibility, & transparency
- Enables Comparability – OS-Climate's Data Mesh & Open Metadata component drives consistency across and within data sources

For a high-level overview of the Data Commons use cases and architecture, see the following [link](#).



“In god we trust.  
All others must  
bring data.”

– W. Edwards Deming

## Datasets

(federated or locally  
stored / derived):

- Climate scenarios
- Sector data
- Industry data
- Policy data
- Corporate data
- Sovereign data
- Physical assets
- Linkages between companies & financial instruments
- Other physical data (e.g., climate, weather)

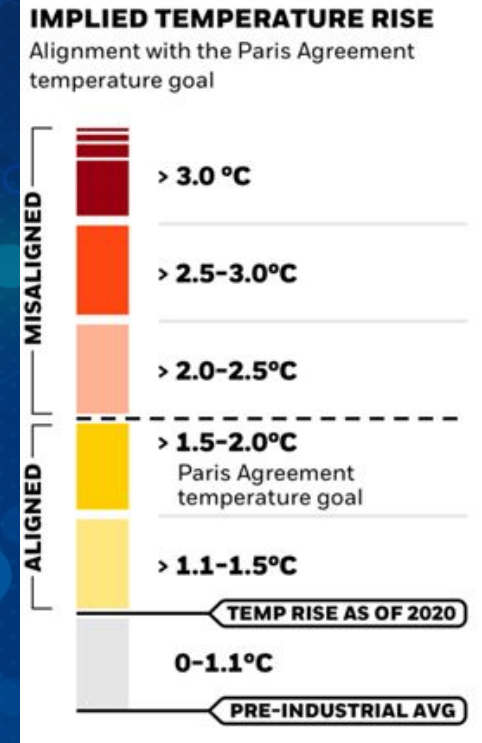


# 2. Sector Alignment & Implied Temperature Rise (ITR) Tool

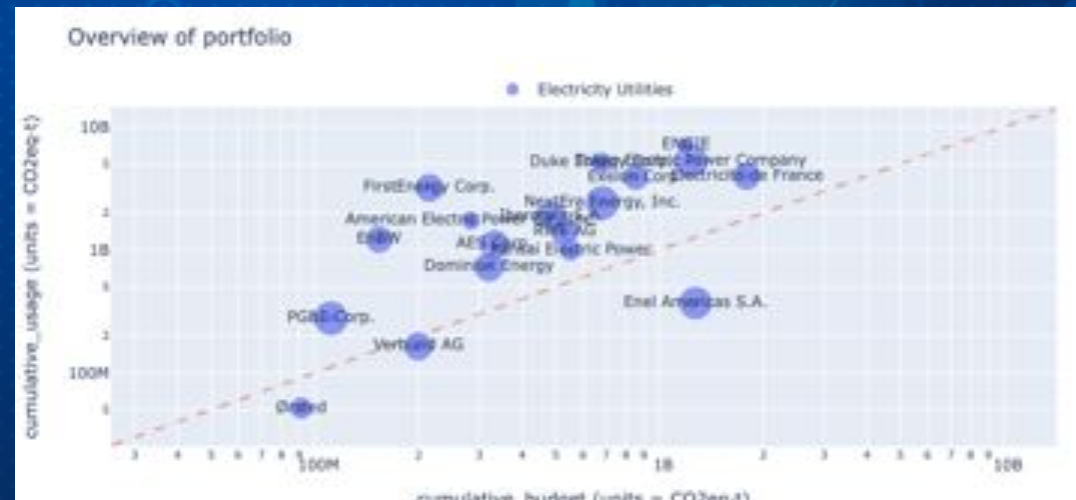
Goal: The ITR tool helps investors align their portfolios with 1.5 degree pathways.

OS-Climate's Open Source-based ITR tool enables investors to:

- Objectively assess emissions targets and projections
- Transparent end to end computation steps for temperature score
- Compare scenarios and their results
- Allow academia and research institutions to collaborate
- Enable a partial independence from commercial data providers
- Compliant with the TCFD-Commissioned report “Measuring Portfolio Alignment”



For a high-level overview of the Sector/Portfolio Alignment workflow, see the following [link](#).



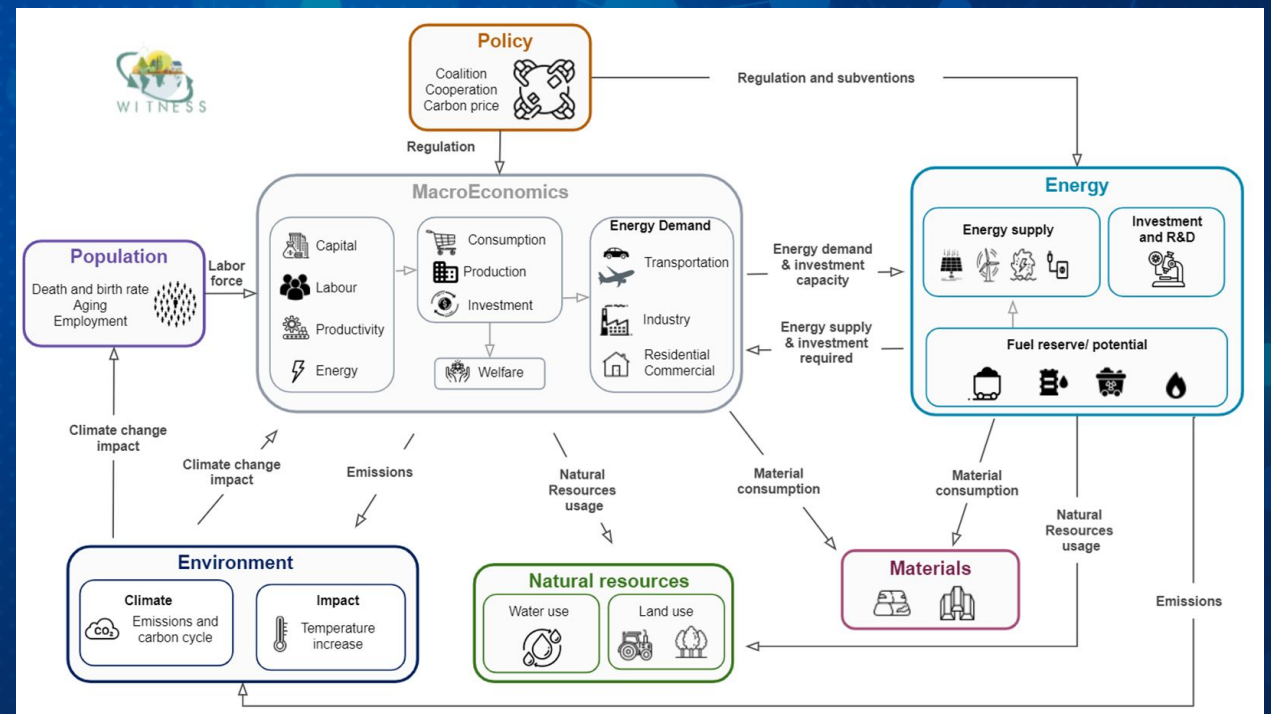


# 3. Transition Scenario Tool

**Goal: Provide users with capabilities to build a complete world transition model**

- Perform multiple scenario assessments
- Optimize global investments – maximize economic development whilst minimizing emissions
- Assess the value and/or impact of energy production technologies on resources
- Project global economic evolution based on changes to energy, resources, climate & policies
- Open source layer allows for input from collaborators/expert community

For a high-level overview of the Sector/Portfolio Alignment workstream, see the following [link](#).





# 4. Physical Risk & Resilience Workstream

## Goal:

- Build pre-competitive layers of data & tooling to support the identification of physical risk within (and beyond) the global financial system
- Set a framing for resilience/adaptation financing



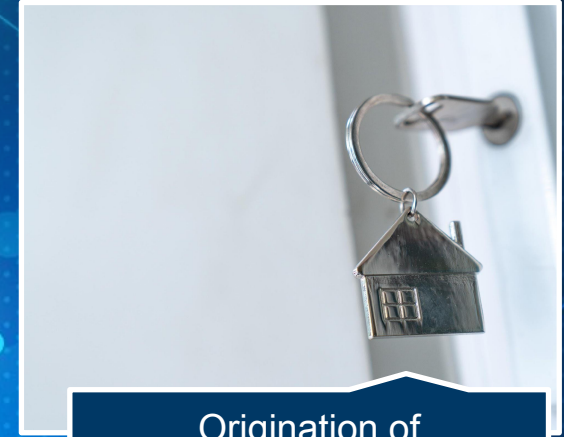
# Physical Risk & Resilience: Use Cases



Disclosures



Portfolio risk measurement  
(scenario analysis)



Origination of  
loans/investments (e.g., real  
estate)



Operational risk



Resilience & adaptation  
measurement & finance<sup>1</sup>



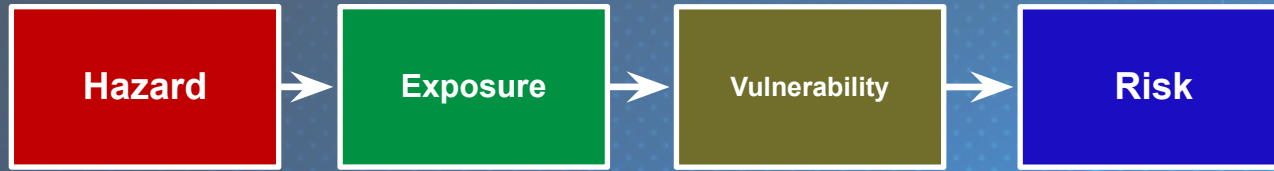
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<sup>1</sup> potential to leverage and extend models and know-how to the public good space



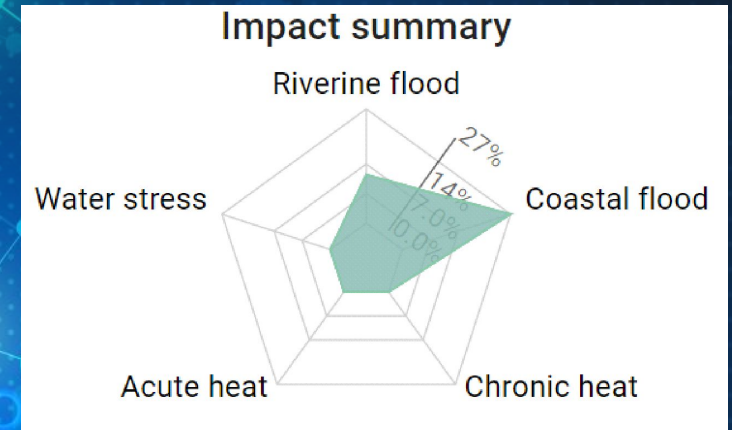
# Physical Risk & Resilience Tools

## Ecosystem overview



Data Exchange

Data Commons  
(data mesh / federation layer)



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- HAZARDS
- ASSETS
- RISK
- ABOUT
- SAVED RESULTS

Hazards

CHRONIC HEAT | MEAN WORK LOSS (HIGH INTENSITY) | SSP585 | 2030

Map showing intensity (fractional loss) from 0 to 0.6. Major cities labeled include Toronto, New York, London, Moscow, Beijing, etc.





# Physical Risk & Resilience

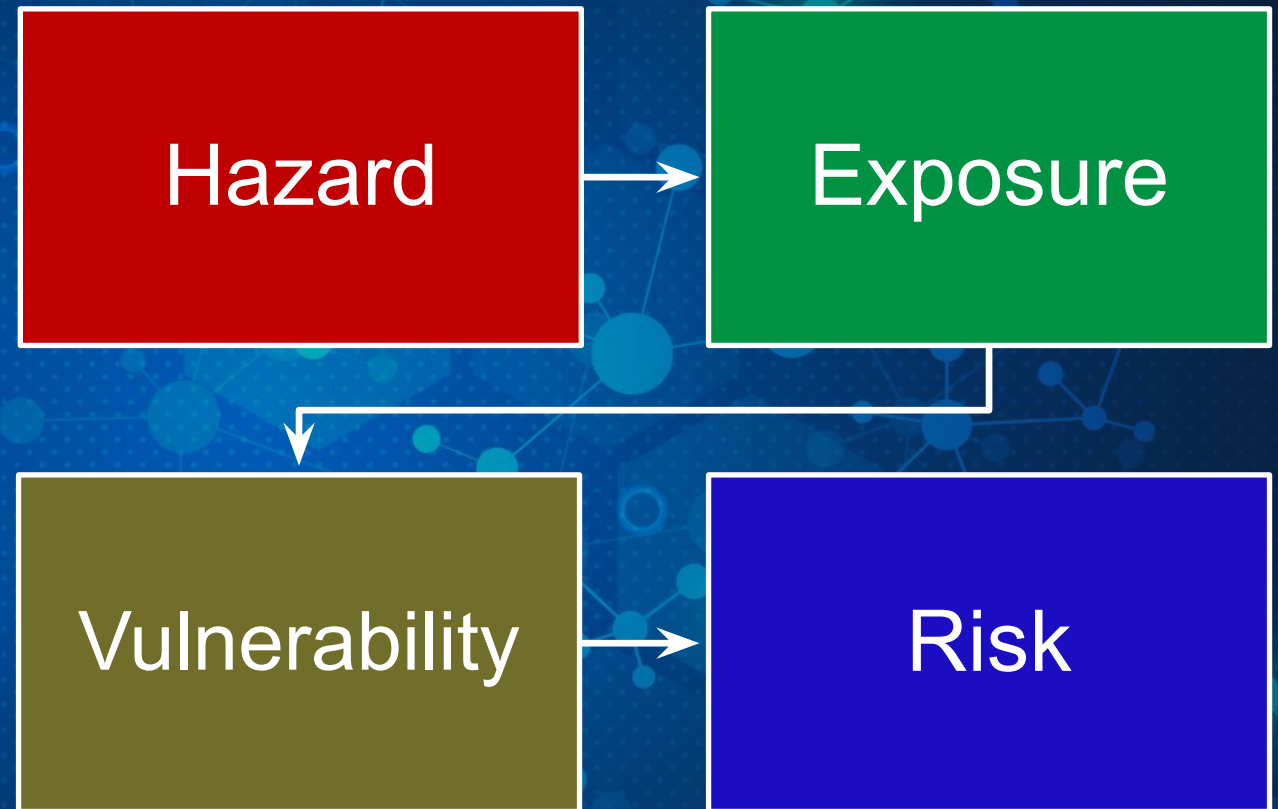
Model building blocks in the end-to-end solution

Reference tools, data & expertise for measurement of physical risk climate hazard and asset damage & vulnerability.

A modular ("plug & play") approach to the risk measurement building blocks.

Gathering asset data and structuring climate models in a usable and understandable format.

(At least) the first three building blocks in the chain are pre-competitive (i.e., ripe for collaboration) for financial institutions, and some elements of risk models can be too.



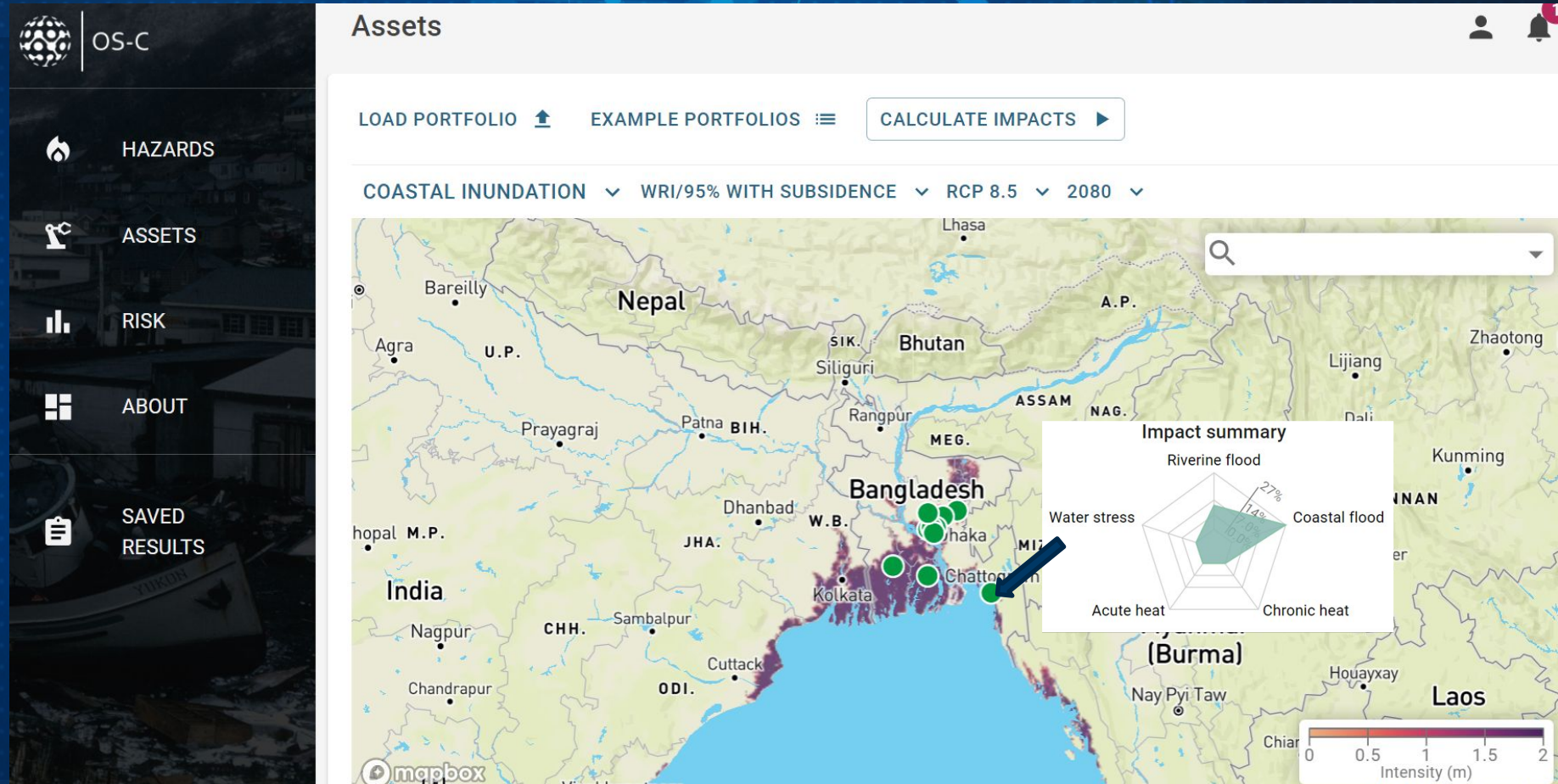
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# Physical Risk & Resilience

## Sandbox UI example

Temporal and spatial measurement of assets at risk



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The tool connects data for a portfolio of assets to climate hazard models, then visualise the portfolio and the modelling outputs, drilling into each asset to view specific impacts. All the code for linking assets to climate & vulnerability models is an unrestricted public good.



# Physical Risk & Resilience

## Public good use cases

OS-C community members are leveraging its tools, initially created for corporate use cases, to serve pressing public good needs:

- The recently formed Sustainable Africa Initiative<sup>1</sup> will localize OS-Climate's data & PRR Tool with climate and vulnerability models for agricultural production in Africa, to assess risk and potential mitigation strategies.
- Consortium Members will utilize OS-Climate's ecosystem for collaborative development through its shared open data mesh infrastructure, Data Commons, and Data Exchange.



**SUSTAINABLE**  
AFRICA INITIATIVE  
A CLIMATE RISK RESEARCH PROJECT



<sup>1</sup> [About – The Sustainable Africa Initiative](#)



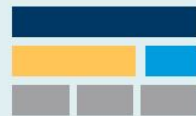
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# OS-Climate End to End Ecosystem Summary



**OPEN SOURCE  
COMMUNITY**



**GLOBAL DATA  
COMMONS/  
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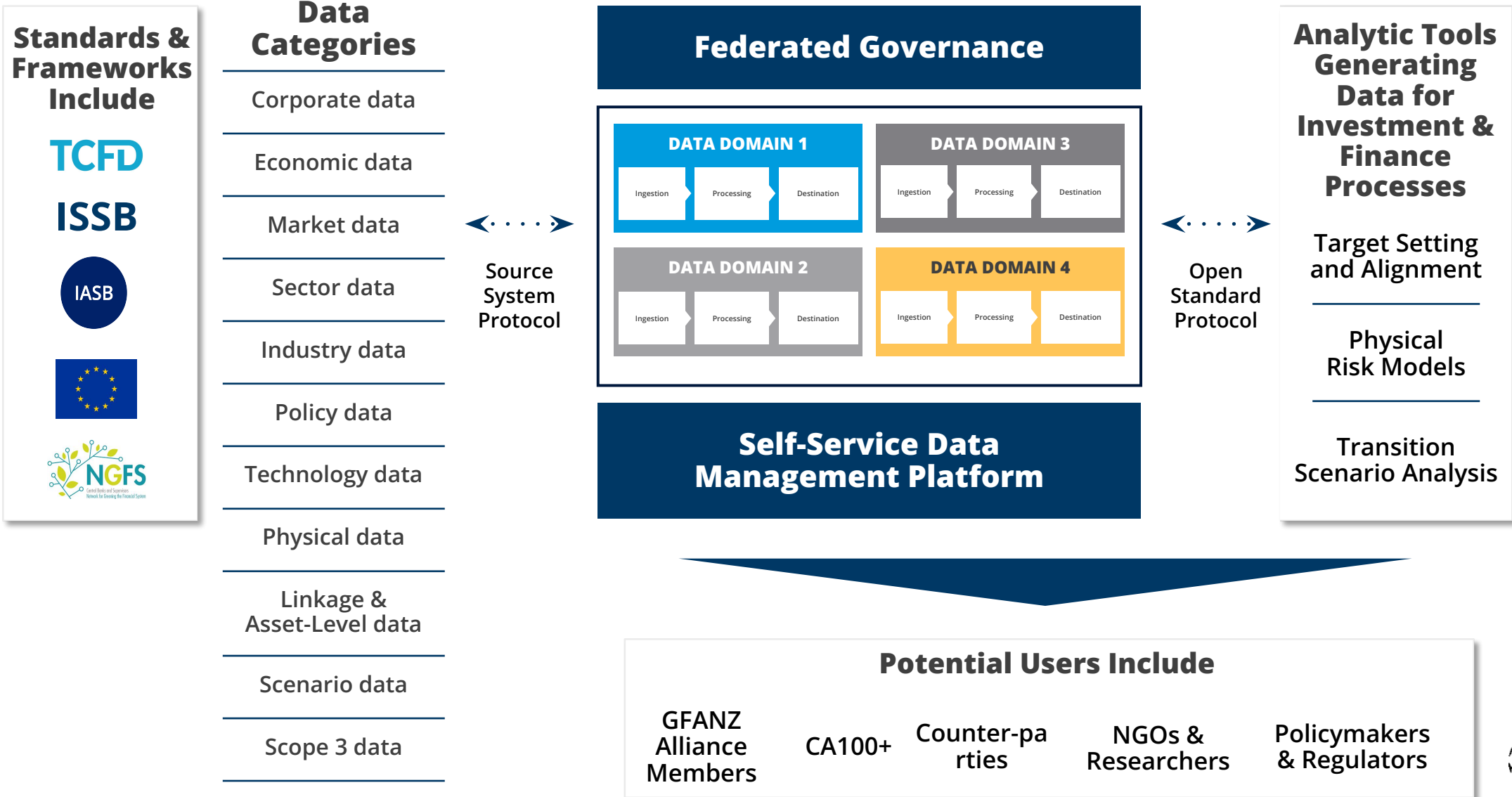


**ANALYTICAL  
TOOLS**



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# OS-Climate Platform end-to-end system flow

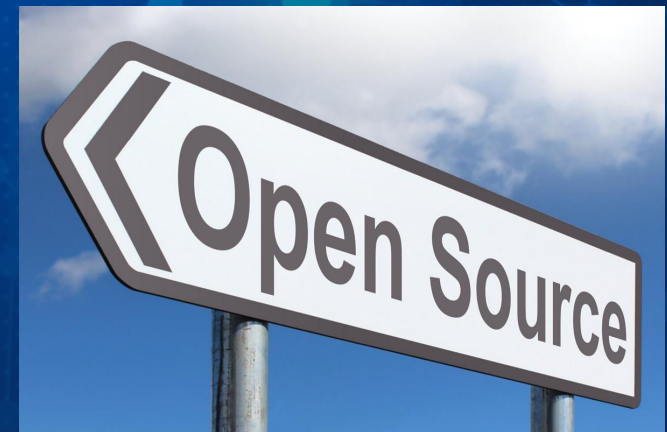




# Conclusions & Benefits of Open-Source

- Open-source collaboration (pre-competitive layers) reduces barriers to entry
- Eliminates common tasks across the industry, generates common language, and provides access to world class research & expertise
- Future proofs expansion of open models & data
- Community shapes the future by using open & trusted tools/methods
  - Long term commitments require credible data and modelling
- Helps eliminate 'black box'
  - Users able to take more control of the computation and understand steps
- Agnostic data mesh and modelling (& collaboration) approaches well suited for expansion from climate data into biodiversity/nature

Become a member: <https://os-climate.org/become-a-member/>



# Thank You!

## To Learn More about OS-Climate



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Become a member: <https://os-climate.org/become-a-member/>