

# Integrating Climate Risk in Long-Term Planning

## *Session 3: Data and Modeling for Long-Term Resilient Planning*

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# Session 3 Objectives

- ✓ Understand the process of data-driven decision making and why it's important for LTS.
- ✓ Learn to develop future climate scenarios using available methodologies and tools.
- ✓ Understand where and how to access relevant data and information.
- ✓ Identify potential climate threats, impacts, and mitigation opportunities in priority sectors.
- ✓ If and how countries have incorporated climate information into planning.

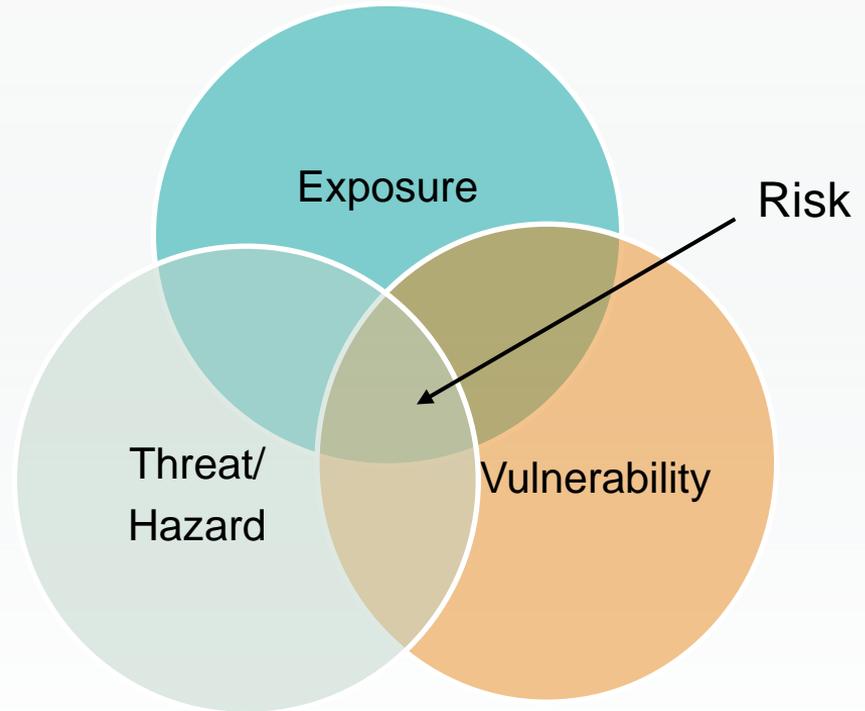
# Recap: Session 2



# What Is Climate Risk?

**Climate Risk** is the potential for loss, damage, or destruction resulting from exposure of a vulnerability to a climate-related threat.

- Likelihood of a hazard occurring multiplied by the consequences that would result if it did happen
- Created by both hazards that occur slowly (changes in temperature) and hazards that are acute (tropical storms and floods)
- Expressed as the consequence (Loss of load, Financial loss, etc.)



# Why Care about Climate Risk?

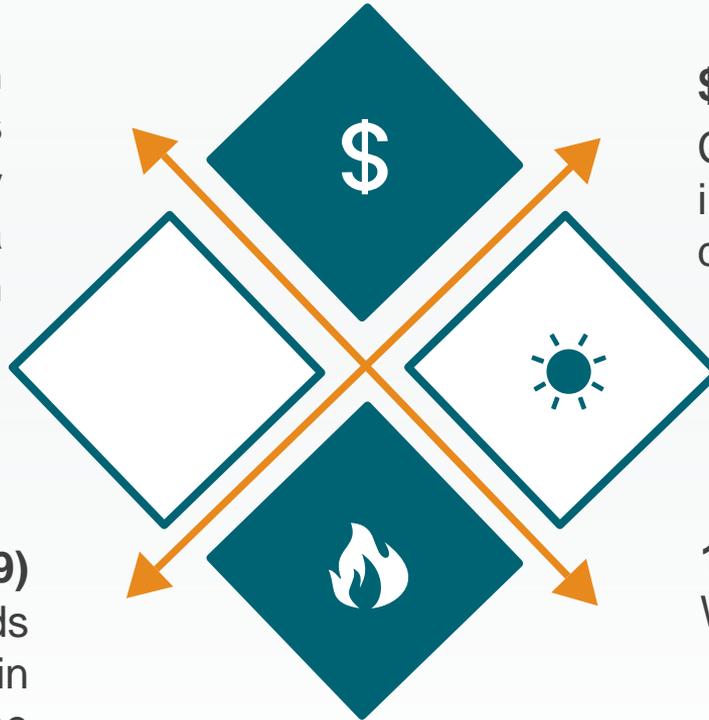
Climate risk considerations are essential for environmental, economic, development strategies and planning

**1.6% of GDP in hurricane damages** each year for every country in Latin America and the Caribbean

**\$4 billion** Crop losses in 2017-2018 in Argentina and Uruguay due to droughts

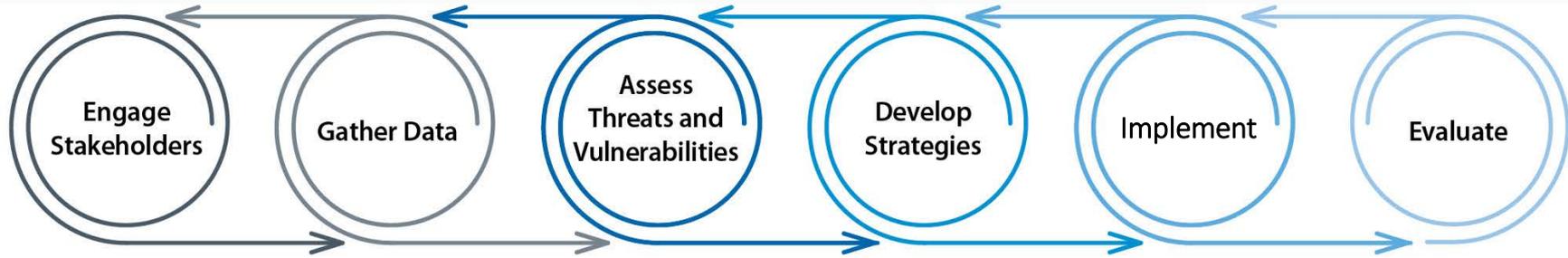
**548 Floods (2000-2019)** On 12 occasions, floods caused >US\$1 billion in Latin America and the Caribbean.

**1.9 million hectares burned** Wildfires in the U.S. in 2019





# Planning for Resilience



Source: resilient-energy.org

## Resilience planning should:

- Be incorporated into existing planning
- Include engagement with broad stakeholders
- Be revisited and updated periodically

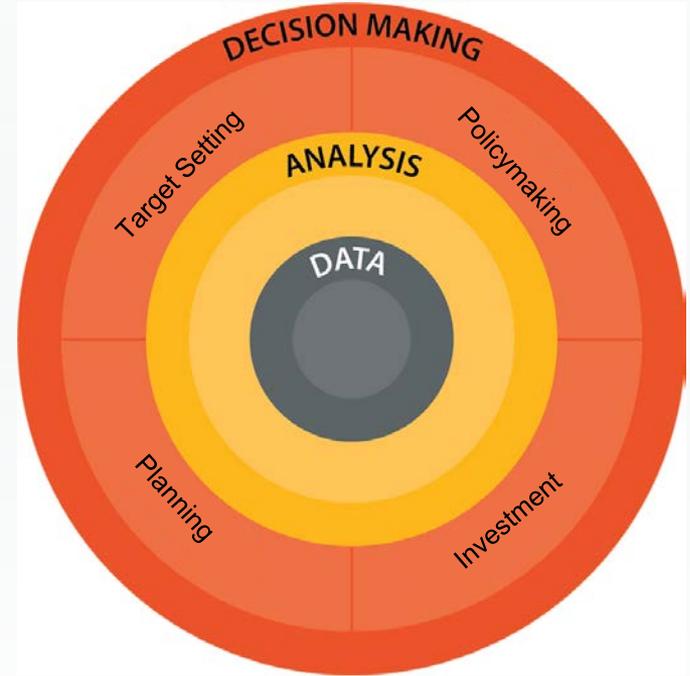
# Data-Driven Decision Making



# Data and Analysis: Essential to Decision-Making

## Data-analysis-decisions nexus:

- Reliable, robust, and validated data are critical for informed planning, policy development, and investment.
- Data can be from a variety of sources, and may vary in quality, completeness, and accuracy.
- Data and analysis provide an **evidence-based approach**.



# Data-Driven Decision-Making



- Supports planning, policy-making, and investment decisions



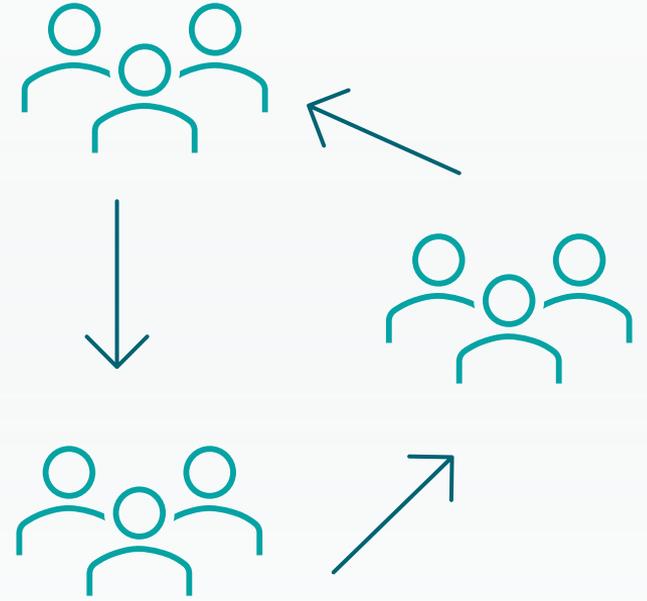
- Encourages and fosters the incorporation of changing variables and uncertainties (**i.e., climate change**)



- Supports transparency
  - Delineates where targets come from and how decisions were made
  - Improves accountability
  - Simplifies reporting

# Stakeholders and Decision Making

- Planning must be rooted in a **stakeholder-inclusive process** that has decision-making authority.
- Stakeholders may include the public and private sectors, civil society, and NGOs.
- Stakeholders are a **source of data, inputs, and objectives**.
- Workshops and other events build confidence and buy-in to processes, assumptions, and results.
- Creates **channels of communication** and outreach with target audiences.



# Stakeholder Selection and Engagement

1. Who may benefit from the project?
2. Who may contribute to the project?
3. Who may be impacted by the project?

## Decision makers

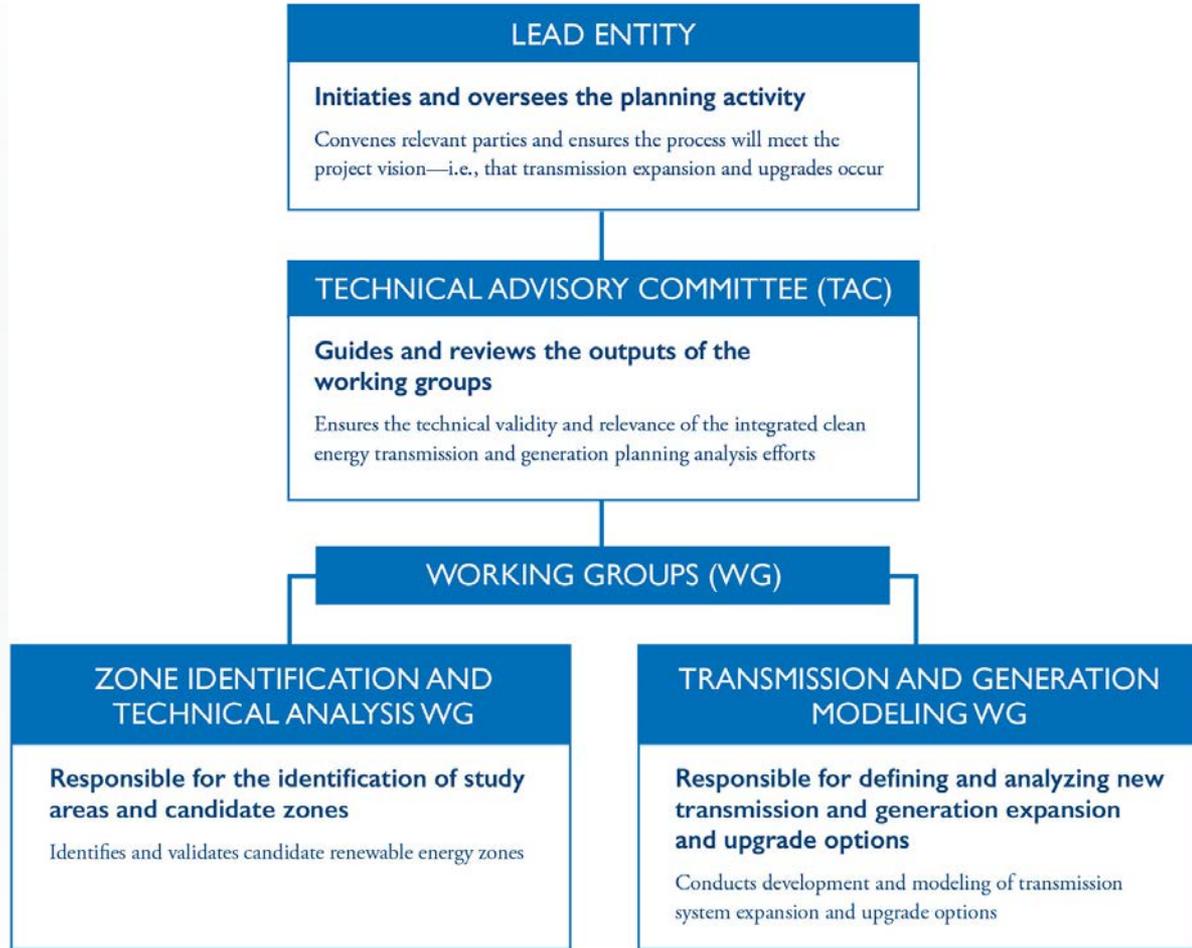
- Ministry or agency officials
- Regulators
- Planners

## Stakeholders

- Private sector investors
- Sub-national governments and municipalities
- Line ministries
- Economic and social development authorities
- Non-governmental organizations

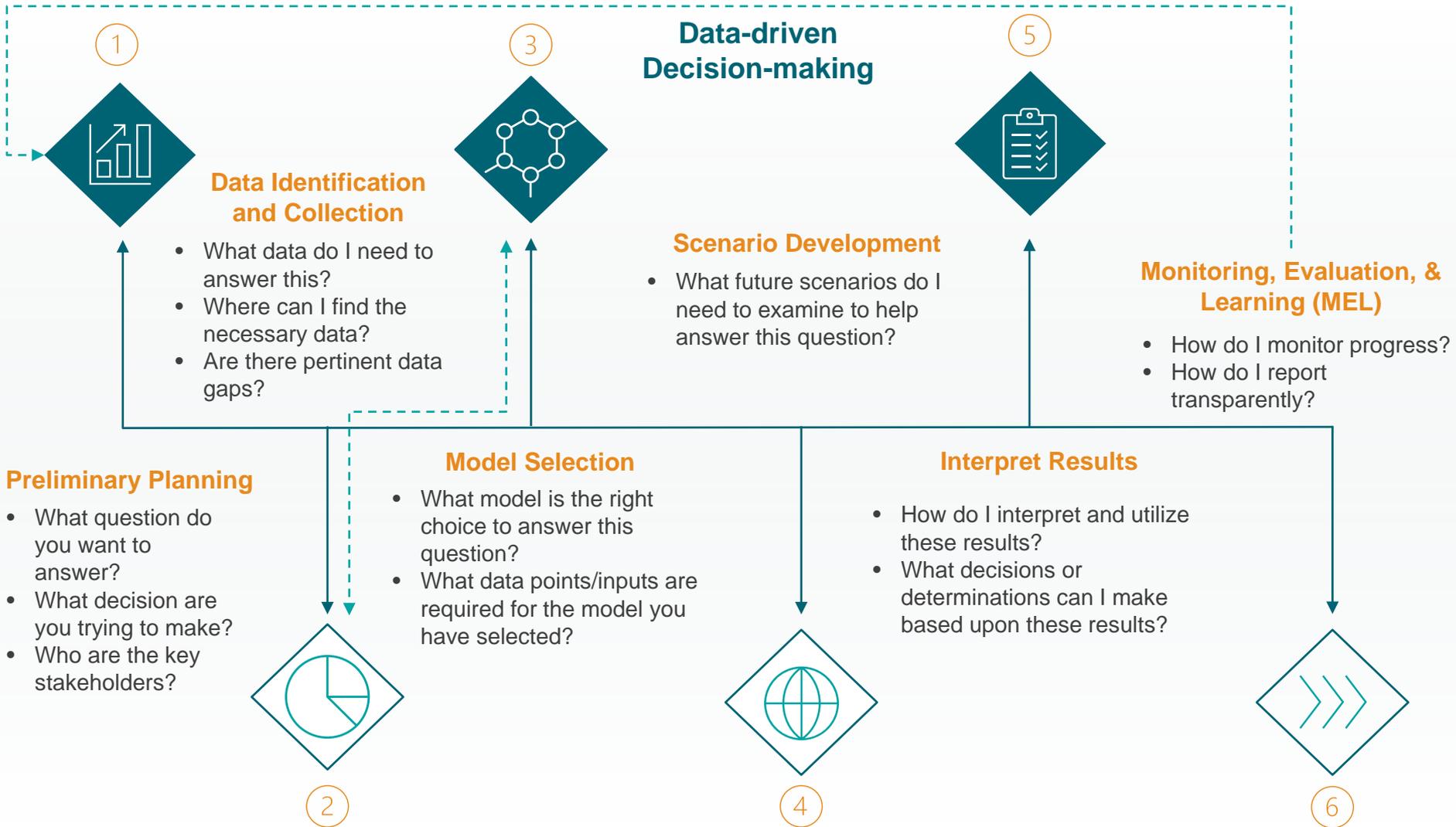
# Stakeholder Engagement Processes

## Example from Philippines' Renewable Energy Zones Planning



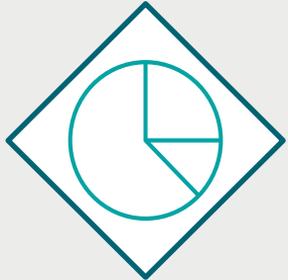
# Data, Analysis, & Modeling





# Data Needs & Sources

- **Climate Data:** from global or regional organizations
  - *Example: Temperature forecasts, rainfall data, sea levels*
- **Sector Data:** consumption, production, or other activity data from country ministries or planning documents
  - *Example: energy usage, forest cover, vehicle mileage*
- **Socioeconomic Data:** GDP, population, etc.
- **Resources:**
  - [Columbia University IRI/LDEO Climate Data Library](#)
  - [CARibbean Weather Impacts Group \(CARIWIG\) Portal:](#)
  - [Caribbean Climate Online Risk and Adaptation Tool \(CCORAL\)](#)
  - [ClimateWatch](#)



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## Model Selection

- What modelling tools are available?
- Which model best helps to answer my question?
- What are the licensing fees and requirements?
- Is there capacity to use the tool?
- What data points/inputs are required for this model?

# Models

Economy-Wide	Sector Specific
<ul style="list-style-type: none"><li>▪ Broadly available</li><li>▪ Offer high-level representation and general vision at the economy or country level</li><li>▪ Lack some of the finer details and nuance</li><li>▪ Good starting point for countries just beginning to think about LTS/emissions projections to 2050</li></ul>	<ul style="list-style-type: none"><li>▪ More granular and detailed picture into a sector of choice</li><li>▪ Offer highly detailed information and results</li><li>▪ Provide nuanced results with direct, specific, actionable targets and/or directions</li><li>▪ Require significant sector expertise</li><li>▪ Need detailed sector-specific information/data inputs</li><li>▪ Less effective or accurate if data points are unavailable, inaccessible, or largely incomplete</li></ul>

# Scenario Development

What scenarios do I need to examine to help answer this question?

- ✓ Scenarios help anticipate change and prepare a response
- ✓ Stakeholders help to determine scenarios
- ✓ Scenarios are analyzed and compared
- ✓ Scenarios may include different future uncertainties, targets or assumptions, e.g.,:
  - Different sea level changes
  - Different GHG or renewable energy targets
  - Different technology costs
- ✓ Assumptions should be documented transparently and agreed upon by stakeholders



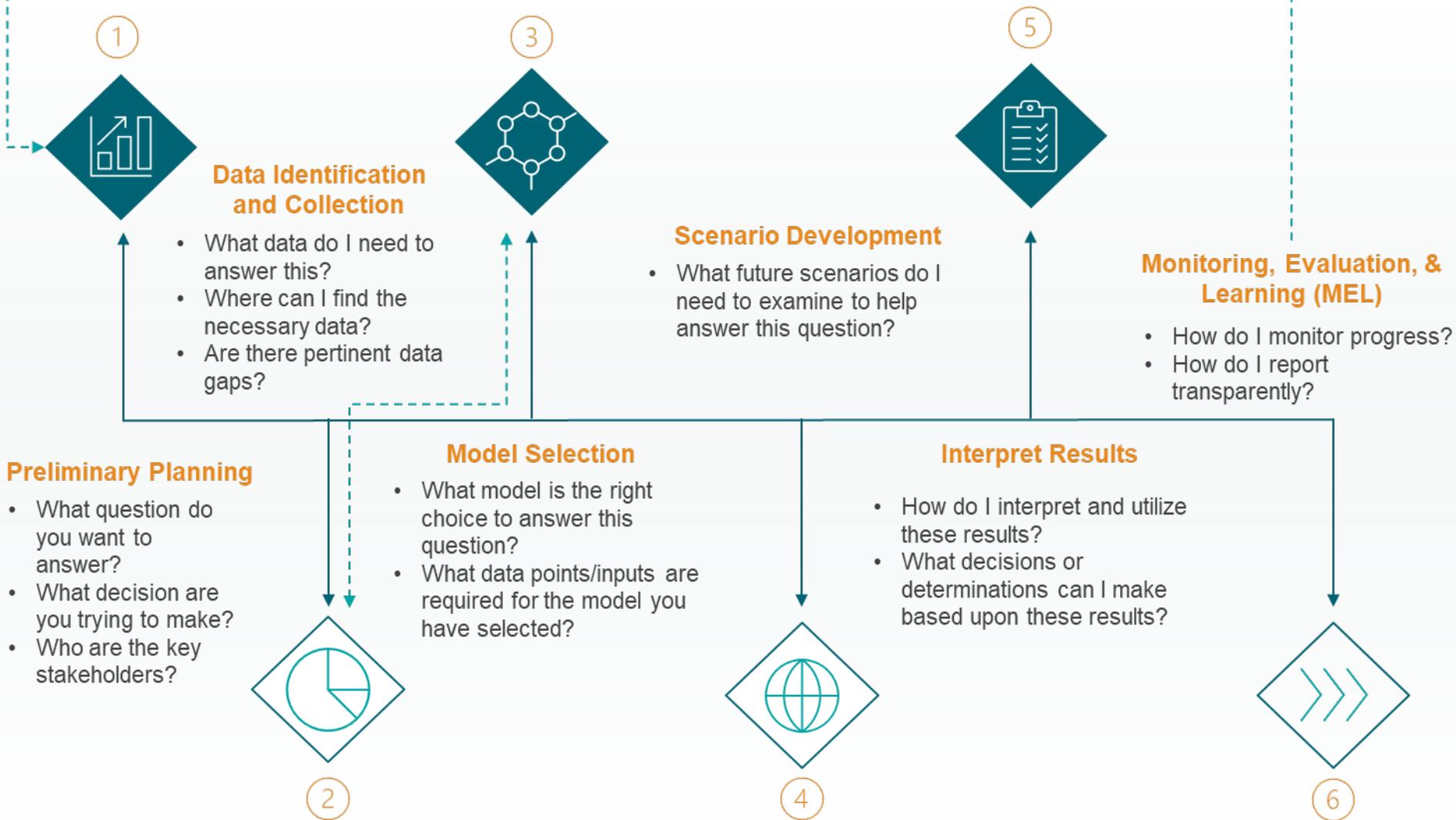
# Climate Considerations & Scenario Development

**Climate considerations are integrated into scenarios as uncertainties.**

- ✓ Developing multiple possible future scenarios incorporates those **uncertainties.**
- ✓ Outputs capture key climate considerations.
- ✓ Allows for more informed decision-making.
- ✓ Documenting data, assumptions, and methodologies supports transparency.



Hurricane Maria-damaged and flooded plantain fields. October 2017. Photo/PRDA.



# Key Takeaways

- ✓ Data-driven decision making supports planning, policy-making, and investment decisions; fosters incorporation of changing uncertainties (i.e., climate change); and improves transparency.
- ✓ Active stakeholder engagement with parties who have decision-making authority is crucial to LTS/planning successes.
- ✓ Climate risks should be considered and built in during scenario development and analysis to inform results and consequent decisions.



# Resources

Data Driven Decision Making in Energy:

<https://www.re-explorer.org/decisions.html>

LTS Analysis Report: <https://www.climatelinks.org/resources/transparency-and-long-term-strategies-scoping-analysis-report>

IRRP: <https://www.greeningthegrid.org/where-we-work/where-we-work-related-content/integrated-resource-resilience-planning-irrp-for-the-power-sector>

CGIAR: <https://ccafs.cgiar.org/flagships/low-emissions-development>



Thank you!



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