

# CLIMATE RISK & ADAPTATION

## COMPANION WORKBOOK

*24 Weeks of Reflection Answers, Exercises & Capstone Drafts*

Name: \_\_\_\_\_

Start Date: \_\_\_\_\_

## How to Use This Workbook

This workbook mirrors the 24-week Climate Risk & Adaptation Study Guide. For each week, write your reflection answers and exercise output directly in the space provided. Treat it as a working record — your Phase 4 capstone will draw directly on what you write here, especially in Weeks 1, 6, 8, 10, 11, 17, 18, 19, and 21.

Print it, use it in a PDF annotator, or copy the prompts into your own notebook — whatever gets you writing consistently.

# Phase 1: Foundations — Climate Science, Risk Concepts & the Business Case

*Build a working knowledge of climate science, the physical/transition risk taxonomy, and why climate risk is a financial issue, not just an environmental one.*

## Week 1: Why Climate Risk Is a Business Risk

*Resources completed this week (check off):*

- Ceres — SEC & Corporate Climate Disclosure FAQ (background on why disclosure matters)
- IFRS Foundation — IFRS S2 Climate-related Disclosures overview (objective & scope)
- NASA/NOAA — Climate.gov, "Climate Change: Global Temperature" (baseline science orientation)

### Reflection Answers

1. *In your own words, what is the difference between a 'physical' and a 'transition' climate risk?*

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2. *Name one way climate risk could affect your business's revenue, and one way it could affect its costs.*

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3. *Why might an investor or lender care about a company's climate exposure even if the company itself isn't an emitter?*

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### Exercise Notes / Output

*Write a half-page memo (as if to a business partner or manager) explaining in plain language why your business should care about climate risk. Avoid jargon — assume the reader has never heard of TCFD or IFRS S2.*

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## Week 2: Climate Science Fundamentals

Resources completed this week (check off):

- IPCC — AR6 Synthesis Report, Summary for Policymakers (SPM), 2023
- NASA — "Causes of Climate Change" (accessible primer on GHGs and forcing)
- NOAA Climate.gov — "Climate Change: Atmospheric Carbon Dioxide"

### Reflection Answers

1. What is the difference between mitigation and adaptation? Give a one-sentence business example of each.

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2. According to the IPCC SPM, what is meant by a 'carbon budget'?

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3. Why do scientists express future outcomes in terms of scenarios and probabilities rather than a single forecast?

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### Exercise Notes / Output

Read SPM section A (Current Status and Trends) and section B (Future Climate Change, Risks, and Responses). In 5 bullet points, summarize the findings most relevant to a business operating in your industry and region.

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## Week 3: Physical Risk: Acute and Chronic Hazards

Resources completed this week (check off):

- IFRS S2 — Illustrative Guidance on climate-related risks (physical risk definitions & examples)
- FEMA — Resilience Analysis and Planning Tool (RAPT), incorporating the National Risk Index for 18 U.S. natural hazards
- USGCRP — Fifth National Climate Assessment (regional physical-risk chapters), 2023

### Reflection Answers

1. List three acute and three chronic physical hazards relevant to your business's main location(s).

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2. Why might chronic risks be harder for a business to plan for than acute risks, even though they're more predictable?

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3. Pick one asset or site your business depends on — what's its single biggest physical hazard exposure?

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### Exercise Notes / Output

Use FEMA's RAPT (or your national equivalent if outside the U.S.) to look up hazard exposure for your business's primary location. Record the top 3 hazards by relative risk score.

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## Week 4: Transition Risk: Policy, Market, Technology, Reputation

Resources completed this week (check off):

- IFRS S2 Standard — paragraphs on transition risk categories (policy, legal, technology, market, reputation)
- Coursera (EDHEC, audit free) — "The Finance of Climate Change," Module 1-2 on transition risk & stranded assets
- edX (Imperial College, audit free) — "Climate Change: Financial Risks and Opportunities"

### Reflection Answers

1. What is a 'stranded asset'? Could your business or sector have one?

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2. How might a carbon price (even a hypothetical one) change your cost structure?

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3. Which is more likely to affect your business in the next 5 years: policy risk or market/consumer-preference risk? Why?

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### Exercise Notes / Output

Draft a simple 2-column table: left column lists possible transition risk drivers (policy, legal, technology, market, reputation); right column notes one plausible way each could affect your business, even if the effect seems small today.

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## Week 5: The Global Policy & Regulatory Landscape

Resources completed this week (check off):

- UNFCCC — The Paris Agreement, full text
- Ceres — SEC Climate Disclosure Rule FAQ (current U.S. federal & state landscape)
- European Council — "Council signs off simplification of sustainability reporting" (Omnibus I / CSRD update, Feb 2026)

### Reflection Answers

1. Which disclosure regime(s), if any, currently or potentially apply to your business (by jurisdiction, size, or listing status)?

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2. Why might a regulatory rollback in one jurisdiction (e.g., proposed U.S. SEC rescission) not actually reduce the reporting burden on a multinational company?

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3. What's the practical difference between 'single materiality' and 'double materiality' in disclosure regimes?

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### Exercise Notes / Output

Build a short regulatory exposure checklist for your business: jurisdiction(s) of operation, approximate revenue/employee count, and which disclosure regimes' thresholds you fall above, below, or near.

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## Week 6: Financial Materiality & the Business Case — Phase 1 Review

Resources completed this week (check off):

- NGFS — "Climate Scenarios High-Level Overview" (macro-financial framing of climate risk)
- Coursera (EDHEC, audit free) — "Climate Aware Investing" (how markets price climate risk)

### Reflection Answers

1. Phase 1 self-check (write short answers, then compare against your Week 1–5 notes): (1) Define physical risk and transition risk with one example each. (2) Name two global disclosure frameworks and one thing each requires. (3) Explain in 2 sentences why insurers are often the first market signal of physical climate risk.

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### Exercise Notes / Output

Synthesis exercise: Write one page titled 'Why Climate Risk Matters to [Your Business]' combining what you learned in Weeks 1–5 — physical exposure, transition exposure, and regulatory context. This becomes the opening section of your capstone.

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## Phase 2: Frameworks & Standards for Climate Risk Disclosure

*Learn the structured frameworks (IFRS S2/TCFD pillars, GHG accounting, scenario analysis, sector guidance) that professionals use to identify, assess, and disclose climate risk.*

### Week 7: The TCFD Legacy & IFRS S2 Pillars

*Resources completed this week (check off):*

- TCFD — Final 2023 Status Report (legacy framework, useful for historical & sector examples)
- IFRS Foundation — IFRS S2 Climate-related Disclosures, full standard
- TCFD — "Workshops in a Box" fundamentals slide deck (plain-language pillar walkthrough)

#### Reflection Answers

1. *Name the four pillars and describe each in one sentence.*

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2. *Why does 'governance' come first in the framework, before strategy or metrics?*

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3. *What's the difference between a 'risk' disclosure and an 'opportunity' disclosure under IFRS S2?*

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#### Exercise Notes / Output

*Draft one sentence per pillar describing your business's current state, even if the honest answer is 'we don't formally do this yet.' This becomes the skeleton of your capstone report.*

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## Week 8: GHG Accounting: Scopes 1, 2, and 3

Resources completed this week (check off):

- GHG Protocol — Corporate Accounting and Reporting Standard (core standard, free PDF)
- IFRS — Greenhouse Gas Emissions Disclosure requirements applying IFRS S2 (May 2025 guidance)

### Reflection Answers

1. What's the practical difference between Scope 1, Scope 2, and Scope 3 emissions?

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2. Why is Scope 3 often 'optional-but-expected' rather than strictly mandatory in many frameworks?

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3. Which scope is most likely to dominate your business's footprint, and why?

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### Exercise Notes / Output

Do a rough, order-of-magnitude estimate (not a formal inventory) of your business's Scope 1 and Scope 2 sources: what burns fuel on-site, and what electricity you purchase. List sources only — precise figures aren't the goal this week.

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## Week 9: Climate Scenario Analysis: The NGFS Framework

Resources completed this week (check off):

- NGFS — Climate Scenarios Technical Documentation, Phase V (Nov 2024)
- NGFS — Scenarios Portal (data access & scenario explorer)
- IMF/NGFS — Macroeconomic Climate Indicators Dashboard (visual scenario comparisons)

### Reflection Answers

1. *What's the difference between an 'orderly' and a 'disorderly' transition scenario?*

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2. *Why are NGFS scenarios explicitly described as 'not forecasts'?*

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3. *Which NGFS scenario family would be most stressful for a business like yours, and why?*

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### Exercise Notes / Output

*Browse the NGFS scenario explorer or dashboard and pick two contrasting scenarios (e.g., an orderly Net Zero 2050 path vs. a delayed/disorderly path). Note the key differences in carbon price and temperature outcome — you'll use these later in your capstone's scenario analysis section.*

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## Week 10: Materiality Assessment & Risk Identification

Resources completed this week (check off):

- IFRS S1 — General Requirements for Disclosure (materiality concept, free overview page)
- Coursera (EDHEC, audit free) — "The Finance of Climate Change" materiality/valuation modules

### Reflection Answers

1. What is 'double materiality' and how does it differ from the financial materiality concept used in IFRS S2?

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2. Who are the internal and external stakeholders you'd want input from when assessing your business's climate materiality?

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3. What's a reasonable way to score risks on 'likelihood' and 'impact' without over-engineering the process?

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### Exercise Notes / Output

Build a simple 5x5 likelihood/impact grid (blank for now) that you'll populate with specific risks in Phase 3. Label the axes and define what each of the 5 levels means in plain language for your business.

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## Week 11: Sector-Specific Risk Considerations

Resources completed this week (check off):

- IFRS — Industry-based Guidance on Implementing Climate-related Disclosures (SASB-derived, June 2023)
- Accounting for Sustainability (A4S) — TCFD Reporting Examples by sector

### Reflection Answers

1. Find your closest matching industry category in the SASB-derived guidance — what are its top 2-3 climate-related disclosure topics?

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2. How does a real-world sector example (from the A4S reporting examples) handle scenario analysis or risk disclosure?

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3. What's one metric your sector guidance suggests that you wouldn't have thought of on your own?

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### Exercise Notes / Output

Extract the disclosure topics and metrics relevant to your sector from the industry-based guidance. Save this as a reference sheet — you'll draw on it directly for your capstone's metrics & targets section.

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## Week 12: Comparing Global Disclosure Regimes — Phase 2 Review

Resources completed this week (check off):

- EcoVadis — "SEC Climate Disclosure Rule: Current Status and What to Know in 2026"
- Consilium (Council of the EU) — Omnibus I simplification press release, Feb 2026

### Reflection Answers

1. Phase 2 self-check: (1) List the four IFRS S2 pillars. (2) What are Scope 1, 2, and 3 emissions? (3) Name one NGFS scenario family. (4) What's the difference between single and double materiality?

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2. Which framework(s), if any, would your business actually need to comply with today versus in a plausible future?

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### Exercise Notes / Output

Mock disclosure exercise: using the pillar structure from Week 7, your sector notes from Week 11, and your regulatory checklist from Week 5, draft a one-paragraph disclosure statement under each of the four IFRS S2 pillars for your business. This is a rough draft only — you'll refine it in Phase 4.

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## Phase 3: Data, Tools & Quantitative Risk Assessment

Get hands-on with the free public data tools professionals use to map physical risk, water risk, and vulnerability, then build a risk register and heat map for your own business.

### Week 13: Physical Risk Data & Hazard Mapping Tools

Resources completed this week (check off):

- FEMA — Resilience Analysis and Planning Tool (RAPT), incl. National Risk Index data (U.S. sites)
- World Bank — Climate Change Knowledge Portal (global hazard & climate data by country)
- NOAA — Climate.gov Regional Climate Impacts pages

#### Reflection Answers

1. What's the difference between a 'relative risk score' (like FEMA's NRI) and an absolute economic loss estimate?

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2. What are the limitations of national-level tools when you need site-specific answers?

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3. If your business operates outside the U.S., which country- or region-level data source did you find, and how does it compare in granularity?

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#### Exercise Notes / Output

For each physical business location (or your single primary site if you only have one), record hazard scores/ratings for your top 3 relevant hazards using the tools above. Save this in a simple spreadsheet or table — you'll build on it through Phase 3.

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## Week 14: Water Risk Assessment

Resources completed this week (check off):

- WRI — Aqueduct Water Risk Atlas (interactive tool)
- WRI — Aqueduct 4.0 Technical Note & methodology (background reading)
- WRI — "How to Use the Analysis Features in the Water Risk Atlas" (step-by-step guide)

### Reflection Answers

1. *What's the difference between physical water quantity risk and regulatory/reputational water risk in Aqueduct's framework?*

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2. *Why might water risk be more relevant to your supply chain than to your direct operations (or vice versa)?*

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3. *What future scenario/timeframe options does Aqueduct offer, and which is most relevant to your planning horizon?*

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### Exercise Notes / Output

*Enter your business's key location(s) — and, if relevant, one or two major supplier locations — into the Aqueduct Water Risk Atlas. Record the overall water risk score and the two highest-contributing sub-indicators for each site.*

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## Week 15: Vulnerability & Adaptive Capacity

Resources completed this week (check off):

- Notre Dame Global Adaptation Initiative (ND-GAIN) — Country Index
- Adaptation Community — CRAMSE summary of the ND-GAIN methodology

### Reflection Answers

1. *In plain terms: what's the difference between exposure, vulnerability, and adaptive capacity?*

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2. *What does the ND-GAIN score for the country/countries where you operate suggest about baseline national resilience?*

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3. *What internal factors (cash reserves, insurance, redundancy, staff expertise) affect your business's own adaptive capacity, separate from national-level factors?*

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### Exercise Notes / Output

*Write a short adaptive-capacity self-assessment for your business: list 3 factors that would help you absorb a climate shock (e.g., insurance coverage, supplier diversity, financial reserves) and 3 factors that would make you more vulnerable (e.g., single-site operations, thin margins, uninsured assets).*

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## Week 16: Financial Quantification of Climate Risk

Resources completed this week (check off):

- FEMA — "Expected Annual Loss" methodology page (concept transferable beyond the U.S. context)
- Coursera (EDHEC, audit free) — "Climate Aware Investing," risk quantification modules

### Reflection Answers

1. What is 'expected annual loss' and why is it a more decision-useful number than a single worst-case estimate?

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2. How can insurance pricing or non-renewal decisions serve as an early financial signal of physical climate risk?

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3. What's a reasonable, defensible way to put a rough dollar range on a risk you can't precisely quantify?

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### Exercise Notes / Output

For your top 2-3 identified physical risks, write a rough order-of-magnitude cost estimate if the risk materialized (e.g., 'a 3-day flood closure could cost approximately \$X in lost revenue plus \$Y in repair costs'). Precision isn't the goal — directional realism is.

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## Week 17: Applying Scenario Analysis to Your Business

Resources completed this week (check off):

- NGFS — Scenarios Portal / Climate Impact Explorer (scenario data)
- TCFD (legacy, still authoritative) — Guidance on Scenario Analysis for Non-Financial Companies, 2020

### Reflection Answers

1. Under an orderly transition scenario, what's the biggest change your business might need to make?

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2. Under a disorderly or hot-house-world scenario, which of your identified physical risks gets worse, and by roughly how much?

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3. What's one strategic decision that looks different depending on which scenario turns out to be closer to reality?

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### Exercise Notes / Output

Write a two-scenario narrative (half a page each) describing how your business fares in (a) an orderly net-zero-aligned transition and (b) a delayed/disorderly transition with more severe physical impacts. This will become the scenario analysis section of your capstone.

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## Week 18: Building a Risk Register & Heat Map — Phase 3 Review

Resources completed this week (check off):

- IFRS S2 Illustrative Guidance — risk register / disclosure examples

### Reflection Answers

1. Phase 3 self-check: (1) Name two tools you used to assess physical or water risk. (2) What's the difference between exposure and vulnerability? (3) What is 'expected annual loss'? (4) Why do we analyze more than one climate scenario?

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2. Looking at your completed heat map, which single risk is both high-likelihood and high-impact for your business?

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### Exercise Notes / Output

Using the 5x5 grid you built in Week 10, plot every risk you've identified since (physical, transition, water, supply chain) by likelihood and impact. Color-code high/medium/low. This risk register and heat map become a core exhibit in your capstone.

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## Phase 4: Adaptation Strategy, Risk Response & Capstone

Move from risk identification to response: adaptation options, risk transfer, governance integration, and disclosure writing — then complete and finalize your capstone climate risk assessment.

### Week 19: Adaptation Strategies & Response Options

Resources completed this week (check off):

- World Bank — Climate Change Knowledge Portal, Adaptation section (practical measures by sector/region)
- UNFCCC — National Adaptation Plans (NAPs) portal (examples of structured adaptation planning)

#### Reflection Answers

1. For your top risk from Week 18's heat map, what are the avoid / reduce / transfer / accept options?

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2. What makes an adaptation measure 'no-regret' (i.e., valuable even if the climate risk turns out smaller than expected)?

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3. What's the rough cost-benefit case for investing in adaptation now versus waiting?

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#### Exercise Notes / Output

For your top 3 risks, write one adaptation option per risk, noting which category (avoid/reduce/transfer/accept) it falls into and a rough sense of cost versus expected benefit.

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## Week 20: Risk Transfer: Insurance & Financing Instruments

Resources completed this week (check off):

- NAIC (National Association of Insurance Commissioners) — Climate Risk Disclosure Survey resources
- World Bank — Disaster Risk Financing & Insurance Program overview

### Reflection Answers

1. What's the difference between traditional indemnity insurance and parametric insurance?

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2. Why might an insurer's decision to raise premiums or exit a market matter to your business even before you file a claim?

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3. For your business, is risk transfer (insurance) or risk reduction (physical adaptation) likely more cost-effective for your top risk? Why?

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### Exercise Notes / Output

Review your current insurance coverage (property, business interruption, etc.) against the risks in your heat map. Note any obvious gaps — risks you've identified as high-impact but that may be uninsured or underinsured.

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## Week 21: Governance & Integrating Climate Risk into Enterprise Risk Management

Resources completed this week (check off):

- IFRS S2 — Governance disclosure requirements (paragraphs 6-7 of the standard)
- COSO — Enterprise Risk Management framework overview (free executive summary)

### Reflection Answers

1. *Who in your organization (even if it's just you) should be responsible for monitoring climate risk?*

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2. *How often should climate risk be reviewed relative to other enterprise risks — quarterly, annually?*

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3. *What's one small, concrete governance step (e.g., adding climate risk to an existing risk review meeting) you could implement immediately?*

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### Exercise Notes / Output

*Draft a one-page 'climate governance note' describing who owns climate risk oversight in your organization, how often it's reviewed, and how it connects (or should connect) to broader risk management or strategic planning.*

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## Week 22: Communicating Climate Risk: Disclosure Writing & Stakeholder Engagement

Resources completed this week (check off):

- TCFD — Seven Principles for Effective Disclosure (from CDP/TCFD guidance for governments & organizations)
- A4S — TCFD Reporting Examples (real-world writing samples across sectors)

### Reflection Answers

1. *What makes climate disclosure 'decision-useful' rather than just descriptive?*

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2. *Who are the specific external audiences (a lender, an insurer, a key customer) who might read your capstone report, and what would each of them want to know first?*

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3. *What's one common disclosure pitfall (vague language, unsupported claims, boilerplate) you want to avoid in your own report?*

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### Exercise Notes / Output

*Revise the mock disclosure paragraphs you drafted in Week 12 using the seven principles of effective disclosure. Tighten the language and make sure each pillar's paragraph answers a concrete question a reader would have.*

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## Week 23: Capstone Research & Drafting

Resources completed this week (check off):

- Your own Weeks 1–22 notes and exercises (primary input this week)
- IFRS S2 Illustrative Guidance (for structure/formatting reference)

### Reflection Answers

1. Which section of your draft feels weakest, and what one piece of evidence or data would strengthen it most?

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2. Have you addressed all four IFRS S2 pillars (governance, strategy, risk management, metrics & targets) somewhere in the draft?

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3. If a skeptical reader asked 'how do you know this risk is real for your business specifically?' — where does your draft answer that, and where does it not?

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### Exercise Notes / Output

Produce a complete first draft of your capstone climate risk assessment (see capstone brief). Don't polish yet — focus on completeness across all required sections.

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## Week 24: Capstone Finalization & Review

Resources completed this week (check off):

- A4S — TCFD Reporting Examples (final benchmarking read before submission/finalization)

### Reflection Answers

1. *Final self-check: does your report clearly state (1) your top physical risks, (2) your top transition risks, (3) at least two contrasting scenarios, (4) a risk register/heat map, (5) adaptation and governance recommendations?*

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2. *What would you do differently if you were starting this assessment over today, knowing what you know now?*

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3. *What's the single most valuable thing you learned across the full 24 weeks?*

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### Exercise Notes / Output

*Finalize your capstone report. If possible, share it with a colleague, mentor, lender, or business partner for real feedback — a report intended for an actual audience is a stronger deliverable than one written only for yourself.*

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## Capstone Planning Worksheet

A written Climate Risk Assessment report for your own business (or a business you have real access to), structured around the four IFRS S2 / TCFD pillars, that a lender, insurer, investor, or business partner could realistically read and act on.

**Executive Summary — one page, written last, summarizing the business case and top findings.**

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**1. Governance — who owns climate risk oversight in your organization and how it's reviewed (from Week 21).**

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**2. Strategy — your business case (Week 6), sector context (Week 11), and two-scenario analysis: an orderly and a disorderly/hot-house-world pathway (Week 17).**

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**3. Risk Management — your methodology for identifying and assessing risk (Week 10), plus your full risk register and heat map (Week 18).**

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**4. Metrics & Targets — a rough Scope 1/2 emissions estimate (Week 8), your top sector-relevant metrics (Week 11), and at least one target or commitment, even if directional (e.g., 'reduce on-site energy use 10% over 3 years').**

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**5. Adaptation & Risk Response Plan — your avoid/reduce/transfer/accept analysis for top risks, including any insurance gap findings (Weeks 19-20).**

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**6. Data Sources & Methodology Appendix — list every tool and source used (FEMA/RAPT, Aqueduct, ND-GAIN, NGFS scenarios, etc.) so the assessment is auditable and repeatable.**

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## Final Rubric Self-Check

- Covers all four IFRS S2 pillars explicitly.
- Uses at least 3 of the quantitative tools introduced in Phase 3 (e.g., RAPT, Aqueduct, ND-GAIN) with real data for your actual location(s).
- Includes two genuinely contrasting climate scenarios, not just one 'business as usual' narrative.
- Contains a complete risk register with likelihood/impact ratings and a visual heat map.
- Proposes at least 3 concrete adaptation or risk-transfer actions tied to specific identified risks.
- Is written so that someone outside your organization (a lender, insurer, or partner) could understand and act on it without additional explanation.