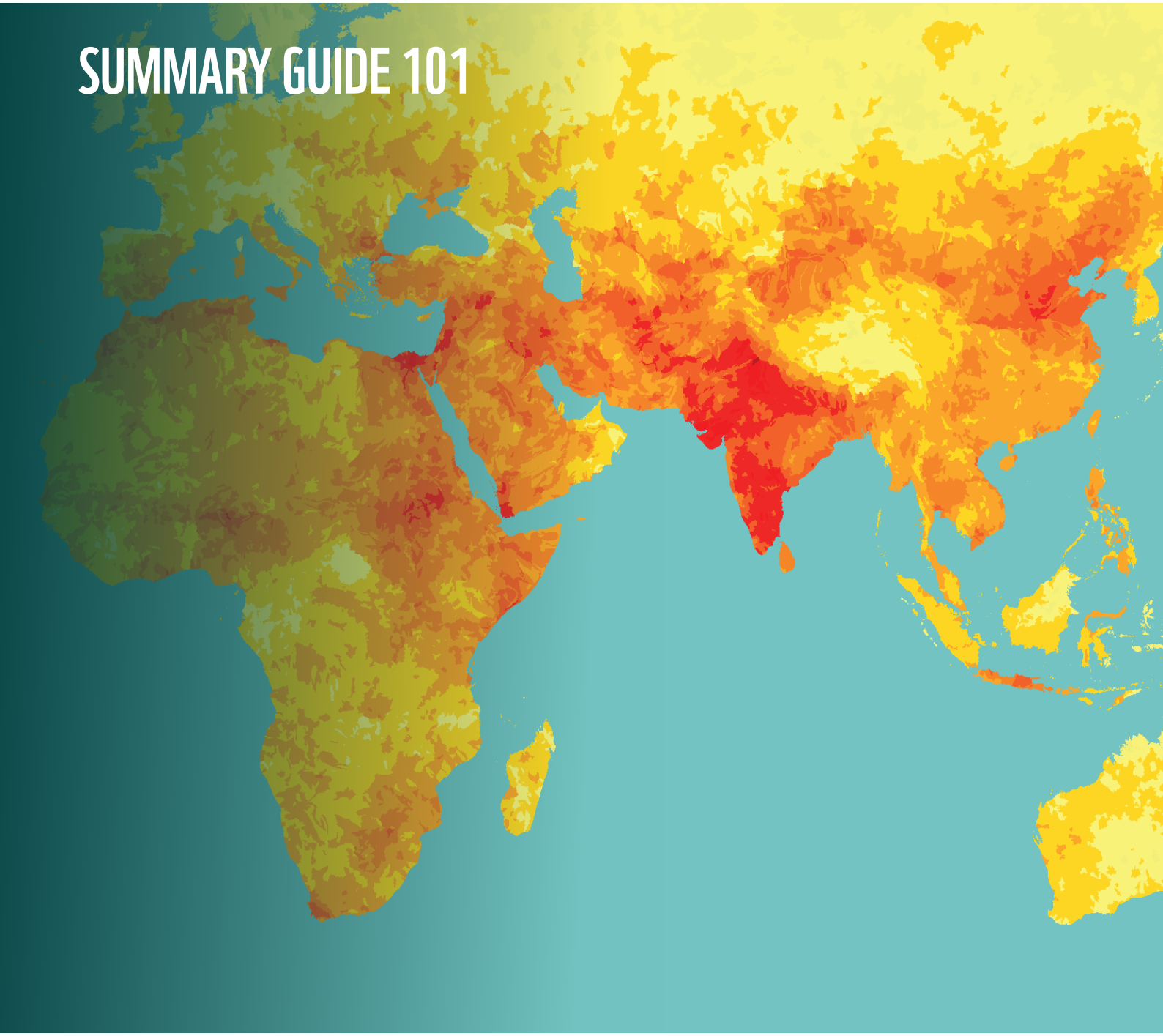
WWF Water Risk Filter

SUMMARY GUIDE 101



CONTENTS

1. WATER RISK AND WHY IT MATTERS

Water is fundamental to our societies and economies; all people and businesses need it. Globally, water resources are under increasing pressure due to climate change, pollution and soaring demand for water from expanding populations, urbanization and economic development. However, water and its challenges are localized.

Based on analysis by the WWF Water Risk Filter, 17% of the global population and 10% of the world's GDP currently come from regions of high-water risk – this could increase to 51% and 46% respectively by 2050, due to climate and socio-economic changes. The financial risks that water presents to businesses are a real threat. **CDP** estimated that in 2020 these risks represented a US$301 billion threat to the bottom line of global businesses. Furthermore, the financial impacts of water risks are expected to grow with climate change.

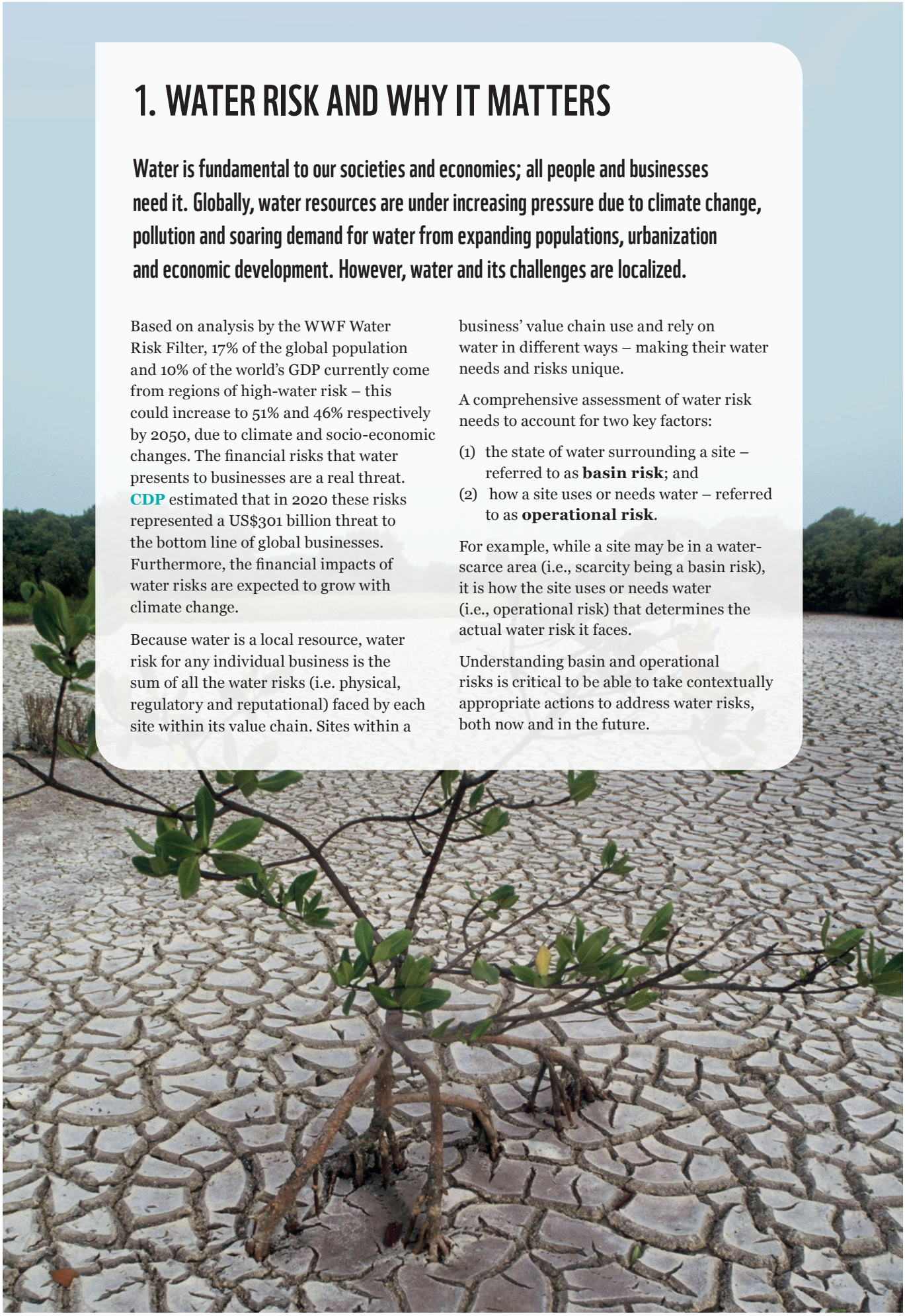
Because water is a local resource, water risk for any individual business is the sum of all the water risks (i.e. physical, regulatory and reputational) faced by each site within its value chain. Sites within a business' value chain use and rely on water in different ways – making their water needs and risks unique.

A comprehensive assessment of water risk needs to account for two key factors:

(1) the state of water surrounding a site – referred to as **basin risk**; and
(2) how a site uses or needs water – referred to as **operational risk**.

For example, while a site may be in a water-scarce area (i.e., scarcity being a basin risk), it is how the site uses or needs water (i.e., operational risk) that determines the actual water risk it faces.

Understanding basin and operational risks is critical to be able to take contextually appropriate actions to address water risks, both now and in the future.



2. INTRODUCTION TO THE WWF WATER RISK FILTER

What is the WWF Water Risk Filter tool?

The **WWF Water Risk Filter (WRF)** is a free online water risk assessment tool. Designed to be used as a corporate and portfolio-level screening tool, the WRF enables companies and investors to identify water risks facing their operations, value chains and investments both now and in the future.

Why should companies and investors use the WWF Water Risk Filter tool?

By assessing their water risks using the WRF tool, companies and investors will be able to identify what to prioritize and where it matters the most to mitigate their water risk. Furthermore, it will enable them to better account for water within their corporate strategies and investment decisions in order to build resilience for their businesses and investments, while in turn supporting the river basins in which their business operate and upon which their investments depend.

WATER RISK ASSESSMENT FRAMEWORK

The tool's basin and operational risk assessment framework is composed of three levels:

(1) RISK TYPES

The WRF's risk assessment framework uses the well-recognized categorization of corporate water risks according to three risk types: physical, regulatory and reputational – as defined by the **CEO Water Mandate**.

(2) RISK CATEGORIES

Each of the three risk types are comprised of multiple risk categories for a comprehensive coverage of different aspects within the broad risk types (see Figure 1). For example, physical basin risk type is comprised of four risk categories: water scarcity, flooding, water quality, and ecosystem services status.

(3) INDICATORS

The risk categories are informed by multiple indicators:

- Basin indicators: the tool contains a total of 32 basin indicators which are updated annually and sourced from trusted peer-reviewed[1] data
- Operational indicators: the tool contains a rapid or detailed operational questionnaire with a total of 10 or 22 questions respectively that are the basis for the operational indicators

For a detailed description of the WRF's risk assessment framework and its datasets, please read the tool's Methodology document available **here**.

1. Peer-reviewed data: experts have developed the data and the data has been reviewed and approved by other experts before publication.

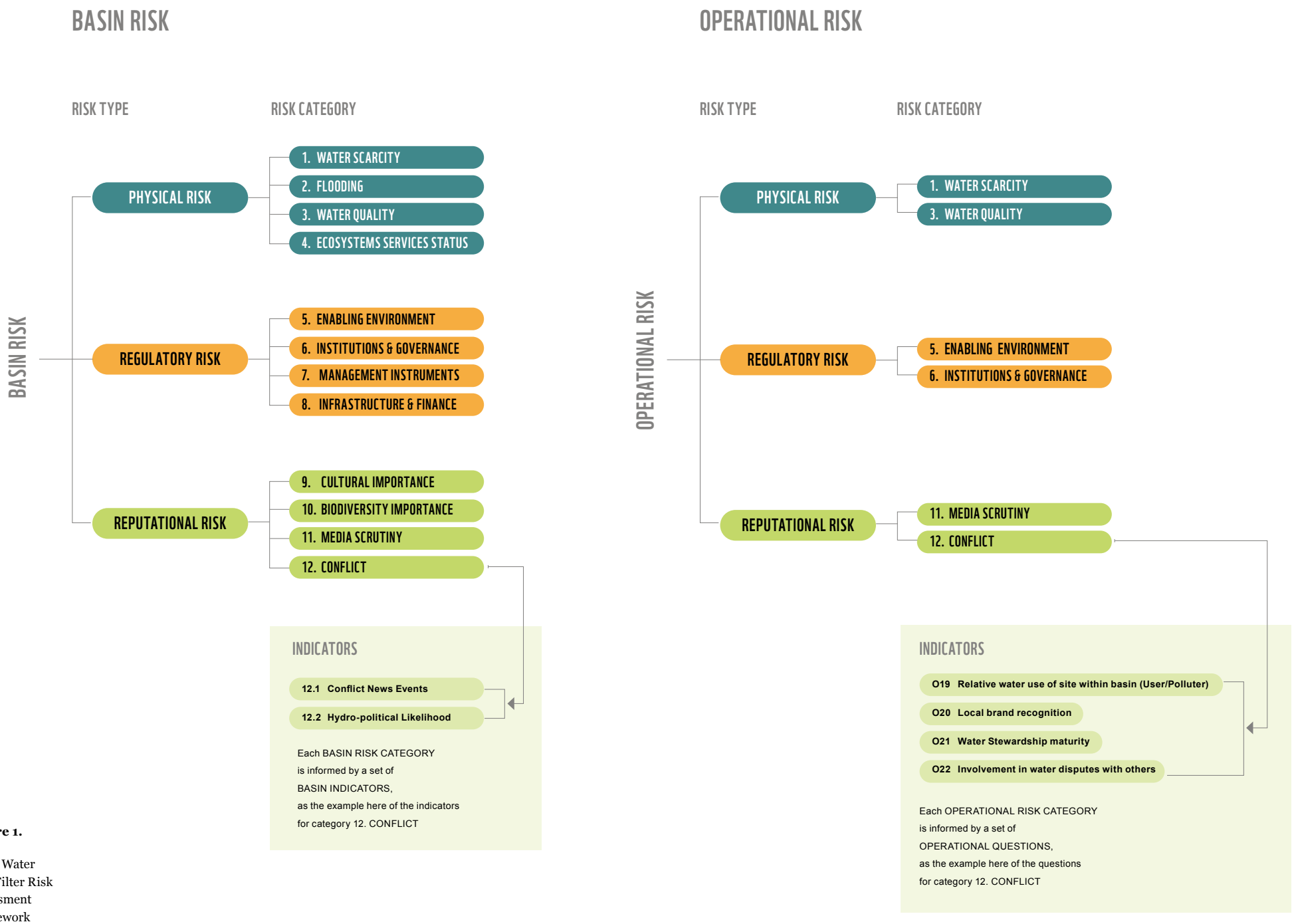


Figure 1.

WWF Water Risk Filter Risk Assessment Framework

3. BASIN WATER RISK ASSESSMENT

Sites across a company's value chain face different physical, regulatory and reputational basin risks due to the nature and conditions of the basins in which they operate.

To assess basin risks, the geographical location and industry of the sites are required. Based on the WRF tool's indicators and industry-specific weightings[2], basin risk scores for all sites can be calculated.

The WRF provides a comprehensive basin risk assessment of all three risk types:

- **Physical risks** account for whether water in the river basin is too little (scarcity), too much (flooding), unfit for use (quality), and/or the surrounding ecosystems are degraded, and in turn, negatively impacting water ecosystem services (ecosystem service status).
- **Regulatory risk** is linked to how water is managed (or governed) in the area or country. Thus, it is heavily tied to the concept of good governance and the fact that businesses thrive in a stable, effective and properly implemented regulatory environment.
- **Reputational risk** is linked to stakeholders' and local communities' perceptions of whether companies conduct business sustainably or responsibly with respect to water. While a lot of the potential reputational risk is tied to how sites use and need water (i.e., do they use water responsibly?), there are some characteristics within the basin that can make reputational risks more likely to manifest as illustrated in Figure 1: culturance importance of water, biodiversity richness, media coverage, and water-related conflicts.

The WRF's global dataset contains a total of 32 global basin indicators, which are based on best available peer-reviewed spatial datasets, in order to assess basin risk for all sites worldwide. However, WWF acknowledges that more detailed assessments can provide better results, as local scale data often represent a more accurate overview of the local water context that might impact companies' operations. Therefore, the WRF also contains datasets for some specific regions (Europe, Greater Mekong) and countries (Brazil, Chile, Colombia, Hungary, South Africa, Spain and United Kingdom) which integrates, where possible, higher resolution local indicators. Since the WRF local datasets use different indicators, it is important to note that basin risk assessments using any local dataset will not be directly comparable with assessments using the global dataset or any other local datasets.

WWF reviews and updates the tool's global and local indicators every year to ensure that the WRF uses the highest quality and most recent data for the basin risk assessments. For a detailed description of the basin risk assessment framework and underlying datasets, please read the tool's Methodology document available **here**.

WHAT THE WATER RISK FILTER TOOL IS VERSUS WHAT IS IT IS NOT

As a **screening and prioritization tool**, the WRF helps to identify sites exposed to highest basin risk to enable companies and investors to better prioritize and focus their mitigation efforts. It should be noted that the logic that underpins the basin risk assessment is to evaluate **typical risk conditions** at basin or country level based on historical trends and recent data as well as some level of projected future risk. Conversely, it is **not intended to assess real-time water risk conditions at a specific site-level location**. Therefore, WWF always recommends users verify and refine with local expert knowledge and on-the-ground information before making any decisions based on the basin risk assessment results.

2.The industry-specific weightings are based on multiple stakeholder consultations and peer reviews with experts from different NGOs, academics, financial institutions and businesses. The weightings are also informed by sector trends from CDP Water Security data.

4. OPERATIONAL WATER RISK ASSESSMENT

Sites across a company's value chain face different physical, regulatory and reputational operational risk based on how they depend on and use water for their activities, as well as how they potentially impact the basin.

Operational water risks are assessed at a site-level by filling in a short (10 mandatory questions) or detailed (22 mandatory questions) operational risk questionnaire covering all three risk types: physical, regulatory and reputational. While the short version will provide basic operational risk results, completing the full version will provide higher quality results. Therefore, users are encouraged to answer the full version questionnaire in the long-term for more comprehensive operational risk assessment results, which in turn enables more complete recommendations that account for both basin and operational water context.

The operational risk questionnaire uses the same framework and approach as the basin risk assessment. However, the operational risk questionnaire does not have complete coverage of all the basin risk categories as illustrated in Figure 1 (e.g., the operational risk assessment only focuses on water scarcity and water quality and does not assess flooding or ecosystem service risk categories).

OPERATE A LARGE NUMBER OF SITES AND ARE NOT SURE WHERE TO GET STARTED WITH COLLECTING OPERATIONAL DATA?

Collecting any form of data requires resources (e.g., time, human and capital). Therefore, WWF recommends you take into account three criteria to identify and prioritize key sites for which to collect detailed operational data:

1. **Business importance:** prioritize sites important from a business value perspective (e.g. high production volume or value)
2. **Water dependence:** prioritize sites with highest dependence and use of water (e.g. water withdrawal)
3. **Basin risk:** prioritize sites identified with high basin risks

Through this prioritization process, users will be able to focus their data collection efforts on sites with the highest business importance as well as water dependence that are facing high levels of basin risk.

5. UNDERSTANDING BASIN AND OPERATIONAL RISK ASSESSMENT RESULTS

By assessing both basin and operational risks, companies and investors can get a complete understanding of the potential water risk facing their operations and investments, which will help to better focus efforts and actions to address them. WWF recommends assessing water risks across a company's value chain and for this reason provides default options to group sites according to Supply Chain Management (SCM) classification.

Within the Assess section of the WRF online tool, the Analyse Risk tab provides different visualizations (e.g. maps, graphics and tables) to help interpret basin and operational risk assessment results. A good starting point for understanding results is to look at how basin and operational risk scores relate to each other in a matrix as illustrated in Figure 2. This type of matrix visualization will help users identify which sites are exposed to high basin and/or operational risk – and thus better identify which type of actions all contextually appropriate for which sites.

Whilst the WRF tool provides multiple visualizations of risk assessment results, users can download the results from the WRF assessment. The excel form contains basin and operational risks scores for all sites assessed - including each indicator, risk category, and risk type. As it can be overwhelming to try and interpret all risk score results, users can apply the key principles outlined in page 9.

BASIN RISK WILL ONLY TELL YOU PART OF THE STORY - IT IS IMPORTANT TO ALSO UNDERSTAND OPERATIONAL RISK

Identifying a potential risk in a region – basin risk – does not always mean this is a risk for a site. For example, if there is a high basin risk of water scarcity, this only becomes a risk to a site if it uses or needs a large volume of water (i.e., operational risk).

For companies or investors with a large portfolio of sites/assets, WWF recommends using the prioritization process (described page 7) based on three criteria (i.e., business importance, water dependence, basin risk) to focus data gathering and assessment of operational risk.

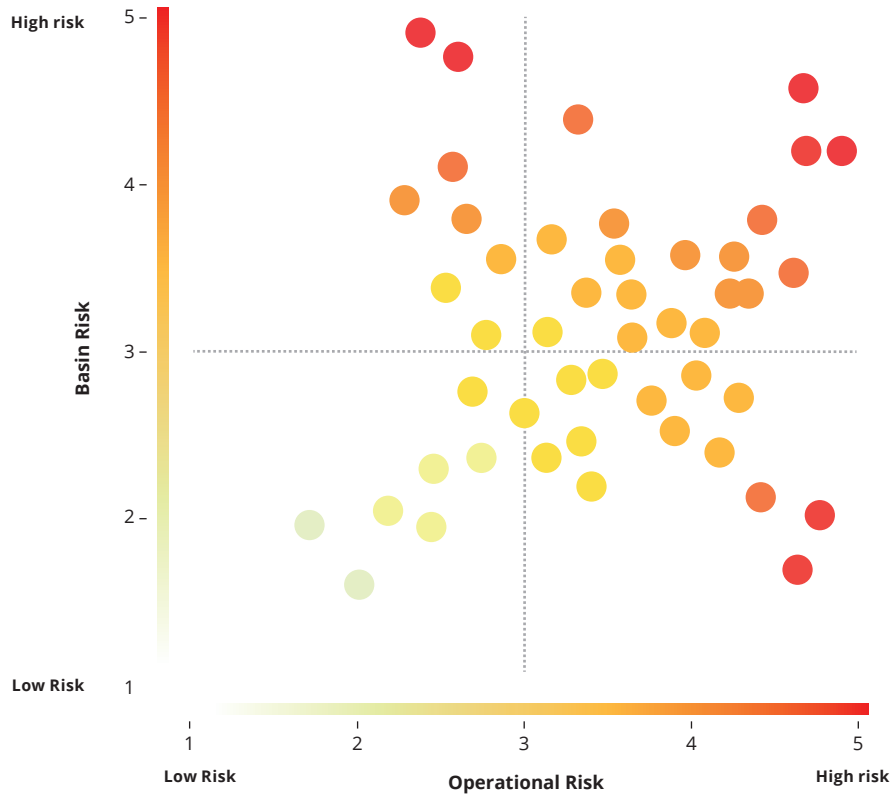


Figure 2:
Example of matrix representing Basin and Operational risks

KEY RECOMMENDATIONS FOR UNDERSTANDING BASIN & OPERATIONAL RISKS

WWF recommends companies and investors apply the following key principles to help interpret risk assessment results:

1. **Establish a risk score threshold to identify sites to focus on**
   There is no hard rule for establishing basin and/or operational risk score thresholds to be able to compare and identify which sites to focus on. According to the WRF risk score classification, sites with risk scores that are above 3.4 are considered of high risk. By taking a more conservative approach, WWF recommends users to also pay attention to sites with risk scores equal or greater than 3.0 as a reference point.

   However, instead of taking a risk threshold approach, users may want to focus their attention on a certain percentage of sites (e.g. 25% or 30%) of higher risk relative to the entire portfolio, depending on resources and ambitions.

2. **Get a first big picture overview by looking at the three risk types – physical, regulatory and reputational**
   The water risks (either basin or operational) is a combination of the 3 main risk types. Therefore, to understand what is driving water risks, look at the risk scores for the 3 risk types to identify which risk type has highest risk score.
   For example, if the Physical basin risk type score is higher than the Regulatory and Reputational basin risk type scores then it is likely that this risk type is more critical to the site(s).

3. **Focus on the risk category level to identify drivers of risk in a comprehensive manner**
   It is important to understand which risk categories may be driving the result for the risk type. To do this, users should look at the risk categories' scores for each risk type.
   For example, look at the scores for the basin risk categories of Water Scarcity, Water Quality, Flooding, and Ecosystem Service Status to understand which of these could be driving the higher physical basin risk score.

   In general, users should focus on risk categories with risk scores greater than their established risk threshold.

4. **Understand what data is used to inform risk categories by looking at indicators** - but do not focus on individual basin indicators as risk category level provides a more comprehensive understanding of risk.

   - **Basin indicators**: It is important to understand which basin indicators (and their underlying datasets) are used to inform the different risk categories. As each basin indicator is based on datasets with their own set of assumptions, WWF combines multiple indicators to calculate basin risk categories for a more comprehensive understanding of risk – see example page 10 on water scarcity risk category.
   - **Operational indicators**:
     To understand the operational risk categories scores, check the answers from site(s) (i.e., risk score) in the WRF operational risk questionnaire (i.e., indicator). Contrary to basin risk, users can focus on risk scores at individual indicator level as these risk scores are based directly on site-level responses.

WWF WATER RISK FILTER TOOL – A SCREENING AND PRIORITIZATION TOOL

The WRF tool should be used primarily as a **screening and prioritization tool** to identify water risk hotspots across multiple sites, in order to then focus on what and where it matters the most to mitigate water risk for enhancing business resilience.

After identifying key priority sites exposed to highest risk, WWF always recommends users verify and refine assessments with local expert knowledge and on-the-ground information before making any decisions based on site-level results.

ASSESSING WATER SCARCITY/STRESS USING THE WWF WATER RISK FILTER

WWF recommends using the Water Scarcity Risk Category for assessing water scarcity risk (or water stress, as it is also referred to) as it is a comprehensive and robust metric that integrates different aspects of water scarcity as well as different modelling approaches, each based on different assumptions.

More specifically, the Water Scarcity Risk Category integrates four well-recognized global datasets using different approaches to estimate water use/demand over availability to determine risk related to water scarcity:

- **Water Depletion** is based on the global dataset developed by Brauman et al. (2016) and measures the ratio of water consumption-to-availability;
- **Baseline Water Stress** is based on a global dataset developed by the World Resources Institute (2019) and measures the ratio water withdrawals-to-availability;
- **Blue Water Scarcity** is based on global dataset developed by Mekonnen and Hoekstra (2016) and measures the ratio of blue water footprint-to-availability; and
- **Available Water Remaining** (AWARE) is based on the global dataset by Boulay et al. (2018) and measures the available water remaining in a given river basin relative to the world average, after human and aquatic ecosystem demands have been met.

In addition, the Water Scarcity Risk Category incorporates other aspects that relate to physical water quantity challenges, which can exacerbate water scarcity risk: aridity and drought.

WWF does not recommend companies focus on only one (or a few) water scarcity indicators to assess water scarcity risk. Users should consider sites as facing potential water scarcity risk when the risk score of Water Scarcity Risk Category is higher than their established risk score threshold.

6. UNDERSTANDING FUTURE WATER RISKS

Up until this point, this guide has focused more on assessing current water risks. However, climate change is changing water risk profiles. Thus, understanding how water risks may change over time is an important part of assessing and responding to water risks.

Scenario analysis is a method to manage uncertainties and is a useful approach for forward-looking assessment of climate and water related risks as recommended by the Task Force on Climate-related Financial Disclosure (**TCFD**). Scenarios are not intended to be forecasts or predictions, rather they represent plausible future states of the world. Therefore, scenario analysis is, in simple terms, the process of looking at different possible futures to better understand how to prepare for these potential changes to ensure long-term business resilience.

The WRF online tool contains three different scenario pathways for both a 2030 and 2050 timeframe to better understand how basin water risk may evolve. The scenarios represent an optimistic, current, and pessimistic version of the future. In line with TCFD recommendations, the WRF scenarios dataset is based on a combination of the most relevant climate scenarios (IPCC AR5 Representative Concentration Pathways – **RCP**) and socio-economic scenarios (IIASA Shared Socioeconomic Pathways – **SSP**). For a detailed description of the WRF scenarios narratives as well as underlying datasets, please read the tool's Methodology document available **here**.

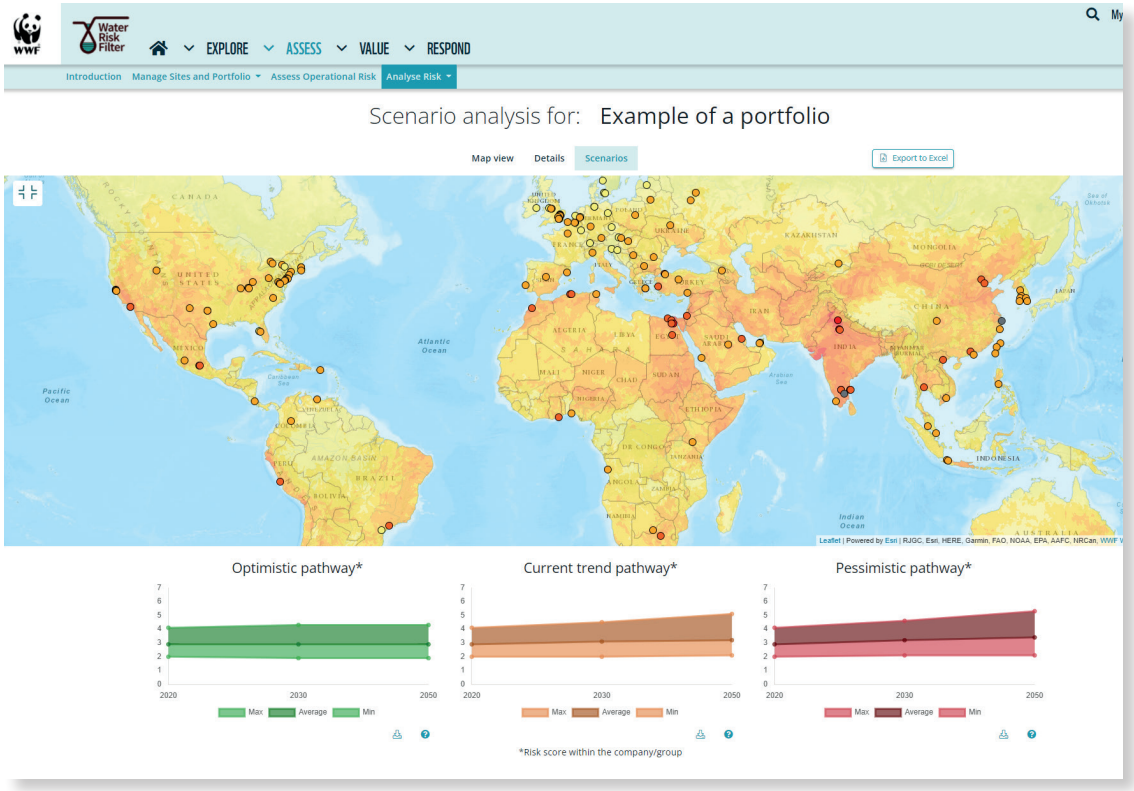


Figure 3: WWF Water Risk Filter Scenario Analysis

KEY RECOMMENDATIONS ON THE USE OF SCENARIOS

1) **Understand the assumptions behind scenarios**
As a scenario is a hypothetical construct that describes a potential path of development that will lead to a particular outcome in the future, it is critical to understand the key assumptions and uncertainties under different scenarios to be able to interpret the outputs of the analysis and potential implications.

2) **Use at least 2 scenarios, including a pessimistic scenario to prepare for the 'worst'**
As the future is uncertain, it is important to use at least two scenarios to explore range of possible futures, including a pessimistic pathway scenario in which water risks are likely to increase most significantly.

3) **Get a first big picture overview by looking at how risk types will evolve under different scenarios**
To understand what is driving water risk change, look at how the risk scores for the 3 risk types (i.e., physical, regulatory, reputational) evolve under different scenarios.

4) **Focus on the risk category level to identify drivers of risk in a comprehensive manner**
It is important to understand which risk categories may be driving changes in risk type under different scenarios. To do this, users should look at the risk categories' scores for each risk type.

5) **Focus on risk change to identify challenges for adaptation** – rather than absolute risk score values
The greater the change in risk (i.e., the difference between today and future risk), the greater the challenge for adaptation. Therefore, it is critical to identify the sites projected to face the greatest increase in risk and focus resilience efforts in those places, especially for material parts of the value chain.

Scenario analysis is not a stand-alone exercise. Therefore, the results of the Water Risk Filter scenario analysis should be integrated with other components of a company's scenario-based assessment, including transition risks and opportunities related to the shift to a lower carbon economy as well as non-water-related physical risks, which might affect the company.

7. RESPONDING TO WATER RISKS

Although the Respond section in the online WRF tool is currently under re-development, this section aims to describe how the WRF risk assessment results can be used to set contextually appropriate response actions to address identified water risks. Furthermore, this section also gives insights into how the WRF risk assessment results can be used to inform water strategies and contextual water targets.

As mentioned earlier, it is important to account for both basin and operational risks for a complete understanding of potential water risk, so that users can then set contextually appropriate response actions to address these identified risks.

Based on example illustrated in Figure 4, sites with low basin risk but high operational risk (bottom right quadrat) should focus efforts on action for operational-excellence whereas sites facing high basin risk and low operational risk (top left quadrat) should focus on basin-level collective action. Particular attention should be given to sites with a combination of both high basin and high operational risks (top right quadrant) where deeper water stewardship programs should be considered to address both basin and operational risks.

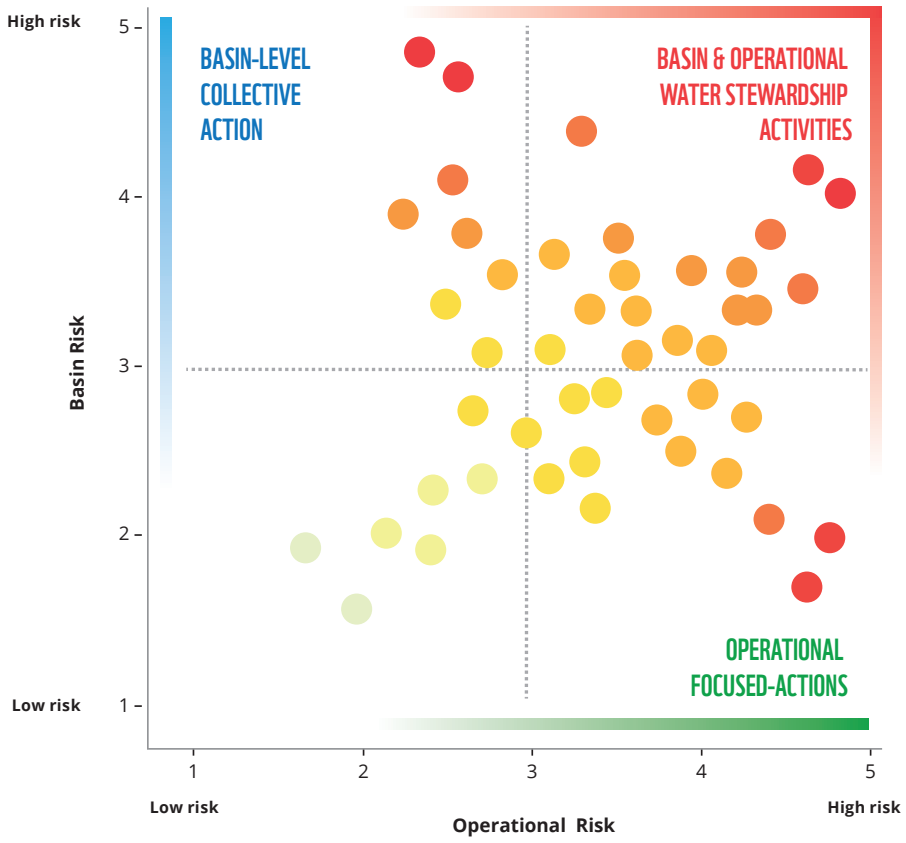


Figure 4:
Contextual response actions to address basin and/or operational risk

While it is important to take contextually appropriate response actions to respond to current water risk of sites, water strategies should also seek to build future water-related resilience. The outputs of scenario risk assessment can evaluate whether the company's current strategy is adequately resilient or will need stronger resilience planning, considering the future risk levels.

Lastly, setting targets is a core part of business, and targets are a key element in driving the delivery of water strategies for responding to water risks. To set meaningful performance targets, it is important to take into account the contextual conditions in sites are operating i.e., contextual water targets. Simply, contextual water target are targets that respond and account for basin and operational contexts (i.e., focuses on the right things in the right places). The WRF risk assessment result on basin and operational risk context can help inform the setting of contextual water targets. As explained in this **case study here**, where WWF worked to develop an efficient approach for setting contextual water targets for over 1,100 sites, using the outputs of the WRF risk assessment.

COLLECTIVE ACTION IN THE NOYYAL-BHAVANI BASIN, INDIA

The textile and garment industry has long been a crucial sector to the economy and is a major factor in the livelihoods of people in the basin. With the support of international textile brands and local partners, WWF has established water stewardship projects in the Noyyal Bhavani Basin aimed at addressing shared basin challenges and has a strong foundation of science-based actions, test pilots to help inform policy making in the region and clear key performance indicators, which will measure the impact on the landscape.

Learn more **here** about WWF's work in the Noyyal-Bhavani Basin, India.

CONTEXTUAL vs SCIENCE-BASED TARGETS

CONTEXTUAL TARGETS
Aim to align the performance of targets with locally material water challenges — meaning greater performance ambition for sites facing greater water challenges.

SCIENCE-BASED TARGETS
Aim to ensure the level of the performance of the targets is in line with what science tells us is needed to establish sustainable water systems.

Currently, there is no globally agreed methodology for setting a water Science-Based Target (SBT). Therefore, contextual targets represent a concrete starting point for businesses seeking to take the first step towards water SBTs. For more information, read WWF's guidance on **Contextual Water Targets**.

PRIVATE SECTOR ACTION ON WATER IS CRITICAL TO ACHIEVE A RESILIENT FUTURE FOR ALL

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