

: The Inevitable Water Finance Response: Investor Risks and Opportunities



Investor note

October 2020

What is the Inevitable Policy Response?

Action to tackle climate change has so far been highly insufficient to achieve the commitments made under the Paris Agreement, and the market's default assumption appears to be that no further climate-related policies are coming in the near-term. Yet as the realities of climate change become increasingly apparent, it is inevitable that governments will be forced to act more decisively than they have so far, and the market transition will accelerate.

The question for investors now is not if this structural shift will occur, but when it will occur, what policy and market developments will drive it, and where the financial impact will be felt.

In anticipation, Principles for Responsible Investing (PRI) commissioned Vivid Economics and Energy Transition Advisors to assess the nature of the IPR and to build a Forecast Policy Scenario (FPS) which lays out the policies that are likely to be implemented up to 2050 and quantifies the impact of this response on the real economy and financial markets.

The Inevitable Policy Response forecasts a response by 2025 that will be forceful, abrupt, and disorderly because of the delay, and the FPS shows that this response presents critical risks and opportunities for investors to take into account in their decision making. Detailed modelling results are all available on the PRI website:

- On the macroeconomy;
- On key sectors, regions, and asset classes;
- On the world's most valuable companies.

Investors need to act now to protect and enhance value by assessing the implications of the IPR Forecast for portfolio risk. The greater the delay in responding, the greater the potential cost.

This work explores the IPR Forecast's implications for water risks and opportunities. It complements and builds upon PRI's existing [investor tools for understanding and managing water risks](#).

Executive Summary

The world is water stressed, and getting more so. 1.7 billion people live in river basins currently facing extreme water stress in which aggregate demand exceeds sustainable recharge ([2030WRG 2017](#)). Population and economic growth drive dramatically increasing water demand, largely from agricultural production, while supply becomes ever more volatile, leading to a doubling of the number of people exposed to water scarcity in the next twenty years alone. Economic assets are also at risk. Current projections of water stress suggest long term growth rate declines of up to six percentage points due to water scarcity-driven losses in agriculture, health and property ([World Bank 2016](#)). Entire regions, including large swaths of Central and East Asia, the Middle East, and North Africa, face particular risk.

Increasing stress is intensified by the net zero transition, which will amplify risks and opportunities for investors. Net zero transition policies will add to these underlying pressures by incentivizing large changes in land use. Reclamation and expansion of forested land will further concentrate agricultural activity in productive areas. Bioenergy crop production will expand water demands in agriculturally productive areas already facing the most water stress. Agricultural productivity improvement, largely in developing countries and through improved irrigation schemes, is also a crucial component of a zero-carbon transition in the land system: The Forecast Policy Scenario of the Inevitable Policy Response project estimates that aggregate global productivity increases of 58% will be driven by climate action even in a world that overshoots a ‘well-below 2 degrees’ climate target (PRI, 2019).

Investors are not managing existing water risk, let alone taking advantage of upside opportunities through better water-related investment. Investors are not well-positioned to take advantage of the investment opportunities expected to arise from the Inevitable Policy Response, and the resulting developments in better demand and supply side water management, particularly with regards to irrigation across primary, secondary and tertiary systems. The IPR FPS estimates a cumulative investment opportunity in irrigation of \$4.6 trillion over the next 30 years. At the same time, large swaths of the economy, including mining, energy, apparel, and manufacturing in addition to food and agriculture depend intimately on secure water availability around the globe. One analysis has estimated that roughly \$660bn in revenue for large food companies may be at risk from water stress (Ceres, 2019).

Forward-looking investors will develop investment channels for sustainable and productive water management and fundamentally re-align how they understand water risks. Although a few successful examples exist, the scale of private investment remains small compared to its potential. Investors can develop the public-private partnerships necessary to enable at-scale private finance into irrigation. On the demand side, some tools already exist to help investors understand current company exposure to water scarcity. Options are currently more limited for understanding future water risks, but would develop in response to investor demand and increased adoption of current due diligence and risk management best practices.

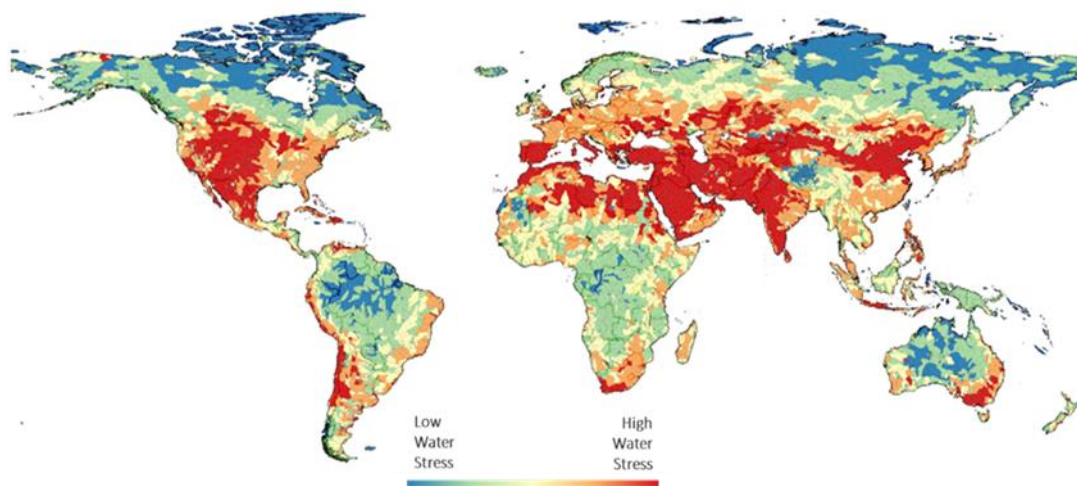
1 Resource competition and climate change drive water scarcity

Expected agricultural expansion is the principle source of new water stress, exacerbated by the increased productivity required as the 'inevitable policy response' to climate change puts greater demands on available land.

While both water supply and demand can vary substantially over time, average increases in demand are expected to outpace 'business-as-usual' changes in supply for most localities globally. Demand for water is set to expand by 40-50% in the food system, 50-70% in industry and municipal supply, and 85% in the energy system by 2050 (World Bank Group, 2016). Increases in water demand across the food value chain are particularly important in absolute terms, since agriculture currently accounts for 70% of global water withdrawals and industrial water use in the food value chain accounts for much of the rest. That puts an expected 45% of economic growth at risk by 2050.

Water stress is expected to be worst in some of the world's most agriculturally productive areas, including North America, Western Europe, Australia, and large swaths of China. The expected geographic distribution of baseline water stress is illustrated below in Figure 1.¹ It illustrates the widespread water stress expected even before accounting for the volatility of climate change.

Figure 1 Projected global baseline water stress in 2040 reaches extreme levels across much of the world



Source: Vivid Economics, based on WRI Aqueduct Database

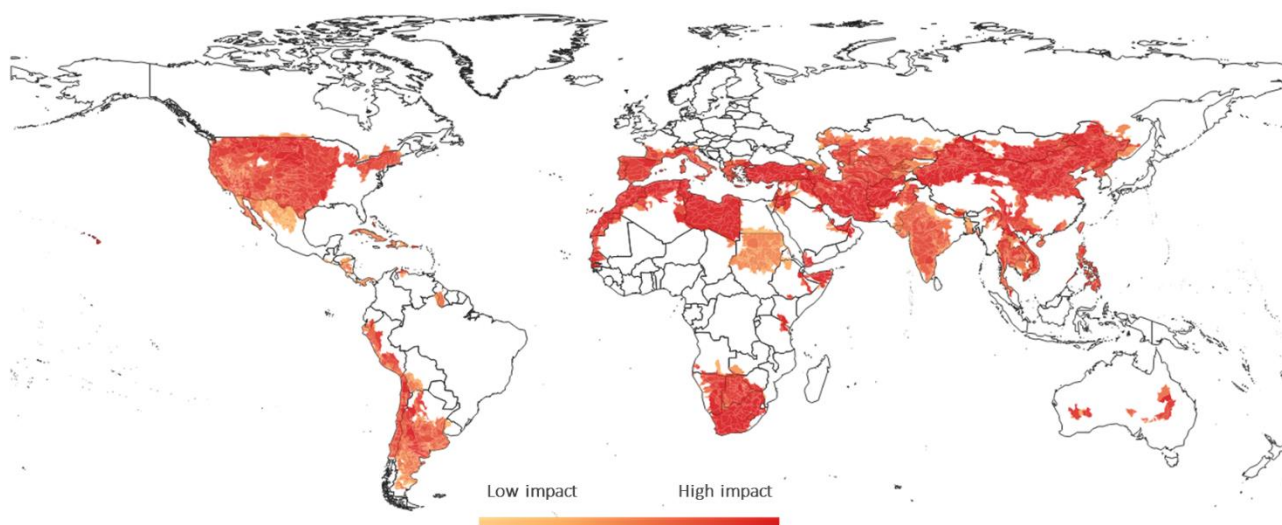
Aggregate water stress figures mask the volatility that comes from climate change. While sometimes contributing to baseline water stress, physical climate change is mostly a driver of volatility – the increased occurrence of floods and droughts both increases infrastructure needs and the tail risks of extreme water scarcity. Underinvestment to account for this volatility increases risks for the private sector: agricultural assets intensive supply chains will be stranded if there is not enough water to go around, for example. These effects can be severe even in places not currently facing aggregate water stress, as the Ethiopia case study in Box 1 illustrates.

Underlying pressures on water and the increased volatility and uncertainty from physical climate change risk will be greatly exacerbated by the inevitable policy response towards a low carbon transition. Substantial

¹ Baseline water stress, or the ratio of annual water withdrawals relative to annual available supply, is a water scarcity metric indicative of the degree of competition for water resources in an average year.

mitigation efforts, including dramatic expansion of forest land and production of bioenergy crops, are required to meet the 1.5- or 2-degree targets set by the Paris Climate Accords. The ‘realistic but forceful’ policy forecast set out in the Inevitable Policy Response (IPR FPS) projects 360 MHa of forest cover expansion by 2050. This still falls well short of limiting warming to 2 degrees; more ambitious climate targets could require as much as 1200 MHa by 2050 (IPCC, 2018). The resulting increase in competition for farmland will require a 58% increase in aggregate productivity, which concentrates agricultural activity and increases water stress in areas already most at risk, as shown in Figure 2, exacerbating the pressure already expected for the world’s current agricultural powerhouses.

Figure 2 Additional water stress in 2040 due to the inevitable policy response exacerbates water stress in places already at risk



Note: Figure 2 shows *additional* water stress (on top of those presented in Figure 1) due only to climate policies modelled in the Inevitable Policy Response.

Source: Vivid Economics

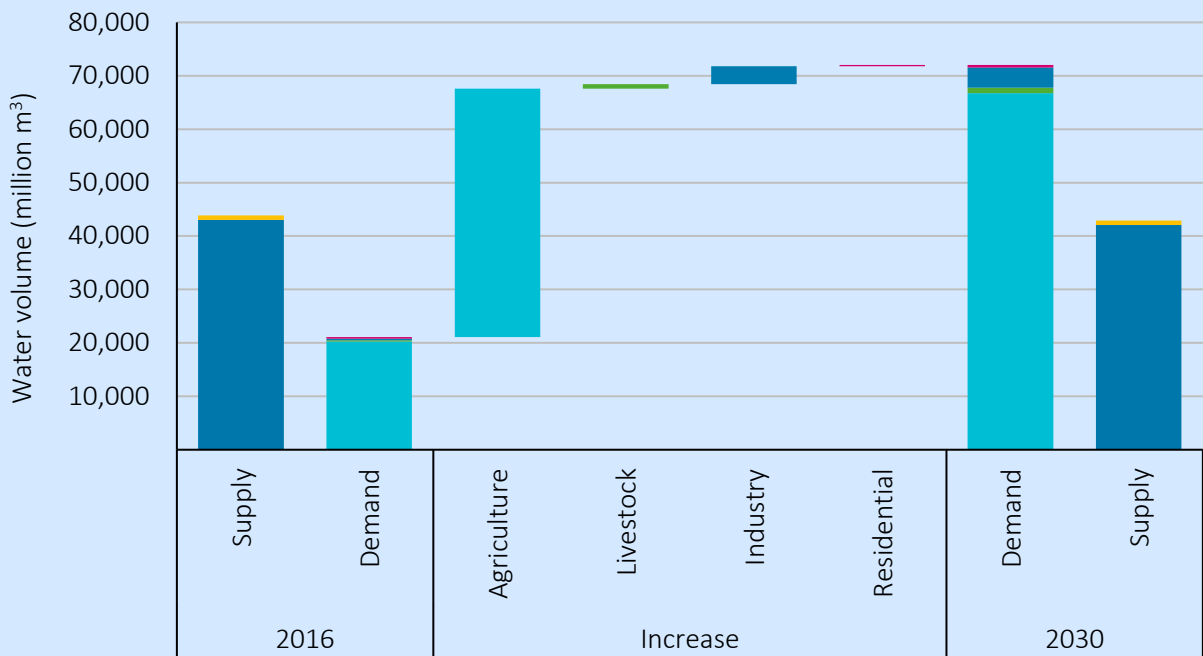
Despite the increasing water stresses coming, the private sector has yet to grapple with water risks that are already prevalent. Now more than ever is the time to control these risks before they become unmanageable.

- **On the demand side, the private sector continues to drive resource competition and rarely acts proactively to decrease its water use and dependency.** Drawing on information from more than 2000 of the world’s largest publicly listed companies, CDP estimates that companies are withdrawing more water year-on-year including at facilities identified as facing substantial water risk, despite increasing awareness of these risks (CDP, 2018). Inaction is due to a wholesale failure by investors, corporations and governments to price water risk into decisions, leading collectively to unsustainable behaviour. In part, this needs to be remedied by improved country, state and municipal level governance. But businesses also undermine their own interests by often responding to short term incentives alone, despite increasing evidence of material impacts to their bottom lines (Sarni and Share, 2019). Many companies fail to even measure their water use, including in watersheds where they are the dominant user and thus have an obvious incentive for sustainable management (CDP, 2018).
- **On the supply side, the private sector has also largely failed to meet the needs for better watershed management and irrigation infrastructure.** The rate of irrigation investment has slowed (World Bank, 2016) at a time when it most needs to increase. Less than half of the total global potential of about 500 million hectares of irrigable land is utilised, with expansion opportunities distributed throughout the developing world (World Bank, 2016). The investments required to increase irrigated area are estimated at tens of billions of dollars per year, with large benefits for agricultural productivity and food security (Palazzo et al., 2019). To date, the primary barrier to private investment into water and

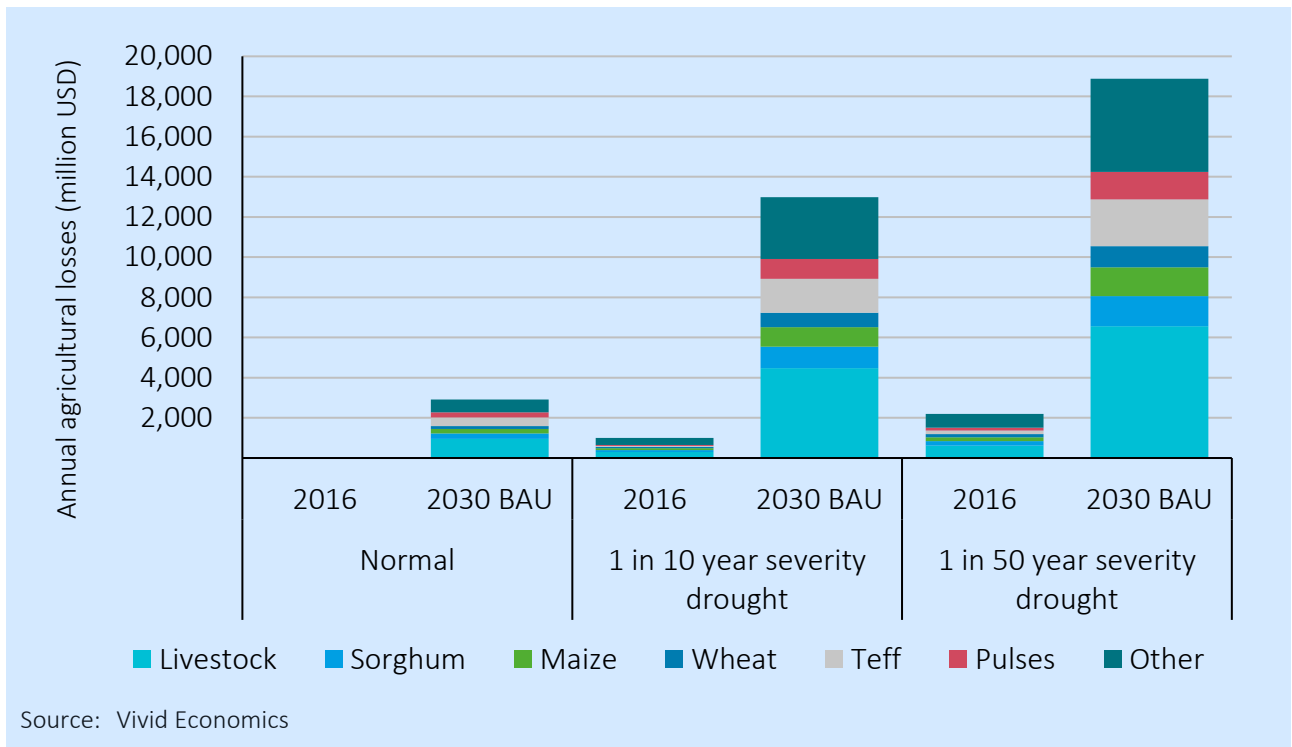
irrigation infrastructure has been the uncertainty of cashflows over long payback periods. This stems partly from a lack of consistent irrigation policies, which can result in difficulty in recovering costs from farmers, inefficient water use, or poor system performance (World Bank, 2006; Conway, 2012; Tanko, 2016; FAO, 2018). These challenges in some localities have led private investors to historically avoid water-related infrastructure projects altogether, so the vast majority have been financed by governments and international development banks (FAO, 2003).

Box 1 Case Study: Projected water scarcity in Ethiopia

Increases in agricultural demand drives aggregate scarcity for Ethiopia’s most stressed water basins in business-as-usual projections. A BAU in which the major sectors of the economy meet government growth targets and water use efficiency is maintained at current levels illustrates a severe aggregate shortage by 2030, highlighting the importance of incorporating water into business planning.



These increases in water stress will increasingly translate into business risks for Ethiopia’s economy, as illustrated by the losses due to extreme events. Annual agricultural losses will approach US\$3 billion by 2030 under a business as usual scenario, and a 1-in-10 year severity drought would top US\$13 billion, representing an enormous 22% of the sector’s value.



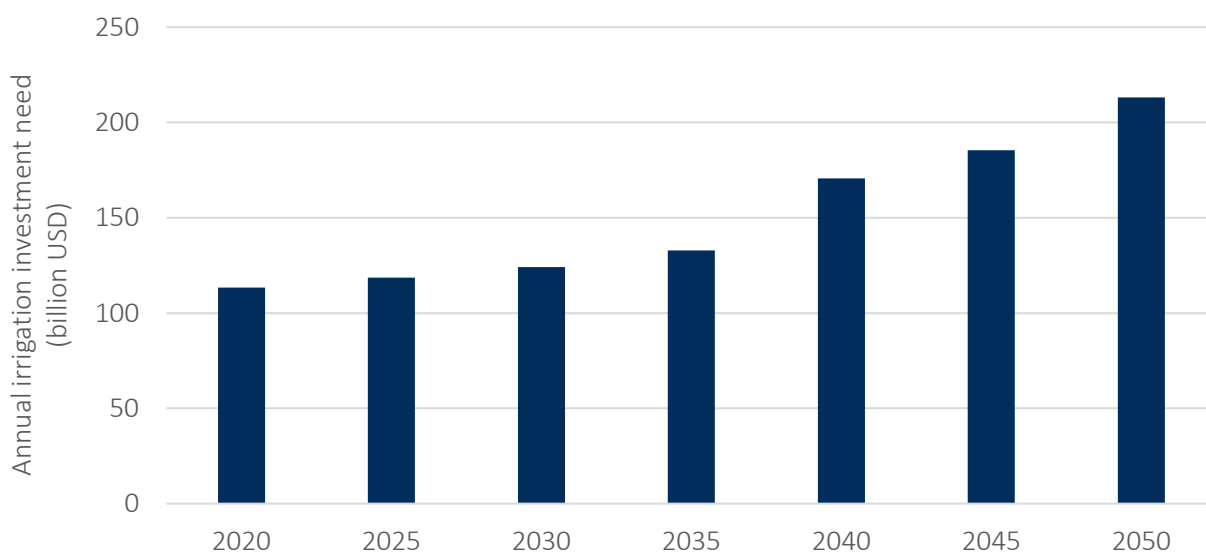
2 Water risk will create investment opportunities, but also affect business bottom lines

2.1 Water stress will create investment opportunities

Pressures on water availability will drive a massive increase in investment in demand and supply side water management. Increasing populations, expanding forests, and rising water stress combine to mean that the global agriculture will have to produce more on less land using less water. This means tackling two great challenges simultaneously: increase total cultivated area under irrigation to improve yields, and dramatically increase the efficiency of that irrigation to reduce water consumption. Both challenges are capital intensive. Expanding irrigated areas involves first securing a source of water, which may require a dam, a borehole, or restoring wetlands or other natural ecosystems that store water to regulate the seasonality of water availability. Depending on the geography, distribution networks often require the establishment of canals, piping, and pumping stations, and the transformation of rain-fed cropland to be irrigation-ready, all of which require sizable up-front investment with long-term payback periods. Irrigation efficiency improvements can be similarly capital intensive, requiring the conversion of existing irrigated areas from flood or gravity systems to more efficient systems, such as drip or sprinkler.

Total annual investment in irrigation infrastructure will nearly double by 2050. The IPR FPS estimates an expansion of irrigated area by 175 million hectares globally by 2050, a 39% increase over the next 30 years. That expansion is associated with an undiscounted annual investment need of US\$113 billion in 2020 to US\$213 billion by 2050 (see Figure 3), with total investment of \$4.6 trillion over the next 30 years. Therefore, an investment opportunity already at considerable scale is expected to nearly double by 2050, with total annual capital investments reaching levels 1.6 times those of solar or wind energy today (US\$133.5 and US\$129.7 billion annually, respectively; Ajadi *et al.*, 2019). Investment figures are inclusive of a variety of capital costs, including engineering and engineering management, parts and material, interest and financing, training and technical assistance, and depreciation costs, but exclude operation and maintenance costs as well as taxes or licensing fees.

Figure 3 Undiscounted annual irrigation investment needs reach \$213 billion by 2050



Note: Investment need figures are undiscounted and presented on an annual basis.

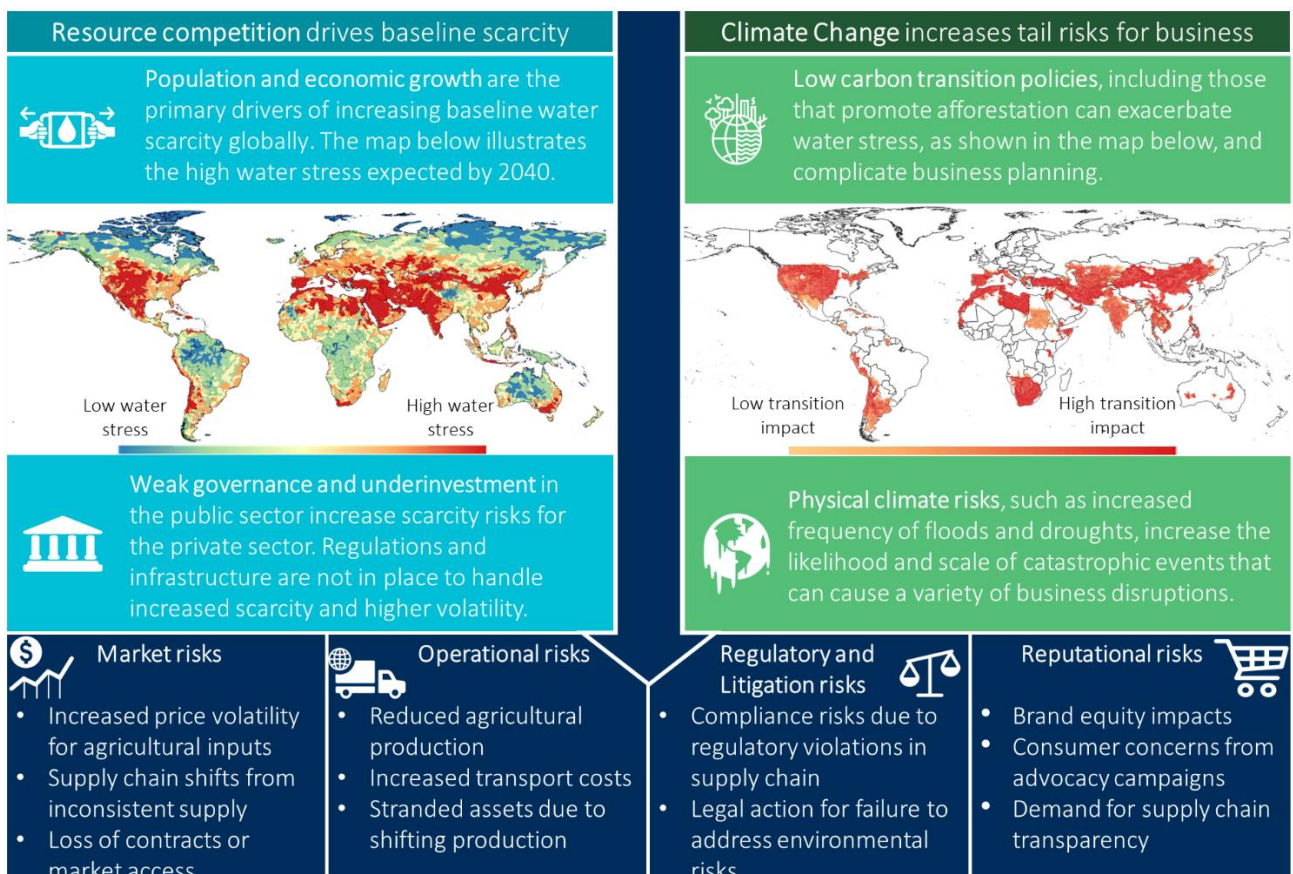
Source: Vivid Economics

Africa represents the biggest market for irrigation investment by 2050, making it by far the fastest growing region for investment opportunity over the next 30 years. Africa’s irrigation investment needs will increase to nearly six times its current size by 2050, from \$13 billion annually today to \$78 billion in 2050. Much of that growth is expected after 2030 when African economies and infrastructure will have developed sufficiently to better enable investment in needed agricultural productivity improvements. In the near term, more mature markets, including Canada and Australia, as well as rapidly growing middle-income countries such as Mexico, Brazil, and the Former Soviet Union will drive growth. Early involvement in these areas will allow investors to test out financing models, including those discussed in Section 4, and develop the experience required to position themselves well to take advantage of opportunities as they emerge in less mature, riskier markets.

2.2 Water stress drives risk to business bottom lines

Water stresses affect businesses through a variety of different channels. Companies can be impacted directly through increases in the price and availability of water or water-intensive inputs in their supply chain. They can also be affected indirectly through increases in electricity prices, macroeconomic decreases in consumer spending, stranding of corporate infrastructure, or loss of access to markets or growth opportunities as a result of water shortages, all of which can be associated with droughts. Figure 3 below illustrates how the drivers of risk discussed in Section 2 can translate into four main categories of direct risks to businesses.

Figure 3 Water stress and volatility drive risks to business



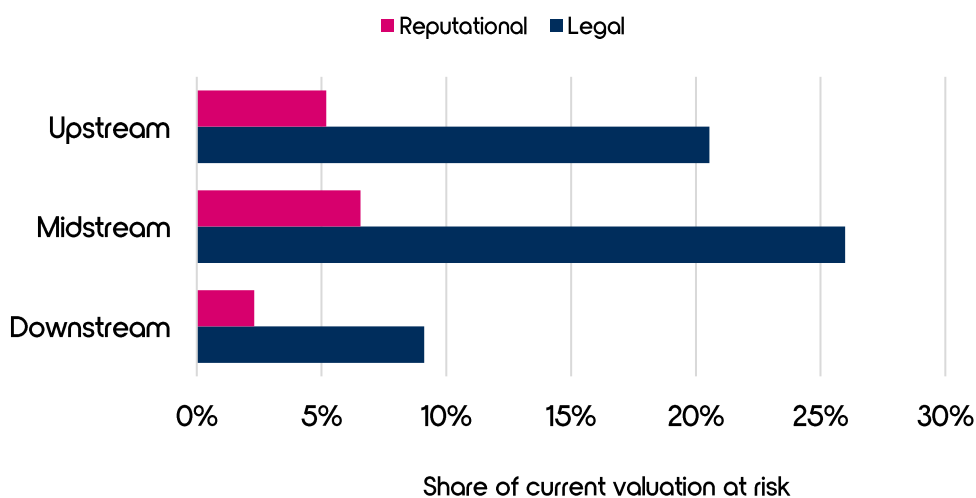
Note: The Ceres Investor Water Toolkit defines and expands upon the business risks presented here. It is a useful resource for interested investors.

Source: Vivid Economics, based on Ceres Investor Water Toolkit

Risk exposure varies by geography, commodity, and a company’s position in the supply chain. All four risk channels can vary substantially depending on regional water stress in a company or supplier’s area of

operation as well as the response of the local government and other actors within a given watershed. Some agricultural commodities are much more reliant on sufficient water at particular times of their growing season, while others might be more resilient to droughts, which makes commodities asymmetrically exposed. A company’s position in the supply chain also matters; downstream, consumer-facing companies that can shift suppliers and regions of exposure tend to be less exposed than upstream companies more tied to a particular geography. Indicative analysis of company value at risk from legal and reputational water scarcity risk factors, shown in Figure 4, suggests that these risks can represent a sizable share of company valuation even before accounting for market or operational risks or adding related risks such as deforestation and land use change. Taken together, these factors imply that investment decisions and due diligence related to water risk exposure matter, as they will create wide variation in company exposure.

Figure 4 Agricultural company value at risk from legal and reputational water risk factors



Note: Figures are calculated based on available information from published supply chain data for Brazilian soy and beef industries combined with reported cases of impacts on company bottom lines. Figures are indicative, and data restrictions currently limit the breadth achievable of such an analysis.

Source: Vivid Economics, based on Ceres Investor Water Toolkit, Chain Reaction Research, and TRASE database

Though the low carbon transition is expected to increase water risk exposure, these risks are already becoming realities, affecting companies across sectors. Examples abound, including Olam International’s reports of a 14.8% decrease in earnings within one of its segments as a result of droughts afflicting Argentina’s peanut crop, or Tyson Foods citing a \$89 million increase in feed costs due to drought and trade tensions as a reason for declining 2018 income (Tyson Foods, 2018). A broader analysis of food companies in the MSCI All Country World Index, found \$415 billion in revenue may be at risk from lack of water availability for irrigation or animal consumption, while \$248 billion could be at risk from changing precipitation patterns affecting current crop production areas (Ceres, 2019). And food is certainly not the only sector with businesses exposed to water risk – Vale, a global mining company, and Tokyo Electric Power Company reported combined water-related losses of \$29.2 billion in 2018 (CDP, 2018).

3 Investor action can mitigate water risk and capitalise on opportunities

Forward-looking investors will develop channels to access opportunities for sustainable and productive water management, and fundamentally re-align how they understand water risks. For water management opportunities, this will involve developing stronger public-private partnerships and expanding upon existing investment instruments for private participation. For water stress risks, this will involve deploying better tools and practices for due diligence and risk management.

3.1 Better investments to mitigate water risk

Investors will have a large role to play in the effort to mitigate water scarcity, and to mobilise capital towards the massive expansion of irrigation across primary, secondary and tertiary systems. Although challenges to private investment have dominated to-date, the need to leverage private capital has grown increasingly urgent and various avenues will emerge for private participation in this class of assets on more favourable terms than in the past.

A number of mechanisms and instruments to facilitate private investment in the sector exist. Opening up such opportunities requires developing strong local knowledge in key jurisdictions, engagement with governments and public financing institutions, familiarity with hybrid public-private mechanisms and instruments, and in most cases, a long-term commitment to cultivating and closing deals. Prominent mechanisms and instruments through which investors can access these opportunities include:

- **Private financing instruments** – Private finance will be possible in mature markets, such as irrigation projects in developed countries. Project finance, which allows developers to set up special purpose vehicles to finance asset construction, and convertible loans, which attract investment through tax-efficient loans that function as equity, will be most commonly deployed.
- **Earnings support mechanisms** – where private finance is not possible at commercial rates, businesses and investors can engage government to make projects investible through government subsidies to enhance earnings. Earnings incentive mechanisms, including tax incentives and outcome delivery incentives like those used in the UK water sector, will be common in water supply infrastructure in developed countries and both irrigation provision and water supply in middle income countries.
- **Public financing support** – where private finance is not possible at commercial rates, government can either enhance returns or de-risk projects by directly participating in financing. This usually involves either co-financing or concessional loans from public financing institutions. Such projects need not require a degree of public ownership in the project, but they can. Instruments like co-financing and concessional loans will be common in developing markets.
- **Public private partnerships (PPPs)** - a form of public finance support in which there is always a degree of public ownership. Morocco's Guerdane Irrigation Scheme of 2004 (see Box 2) offers a template of how governments will increasingly conceptualise investment structures that are attractive to the private sector as a change from business as usual becomes an existential necessity. Irrigation PPPs come in different forms, including lease or affermage contracts, Build Own Transfer, Build Own Operate, Design Build Operate, and concessions, models explored in more detail by the World Bank (World Bank, 2016). PPPs can be designed in a variety of ways depending on how risks are to be shared between the public and private sector. PPPs represent a flexible and powerful tool for water sector investment across markets of differing maturity, and are currently dramatically underutilised.

- **Guarantees and insurance** – risk sharing arrangements can help de-risk PPP models when offered in conjunction. Common types include sovereign guarantees and political risk insurance. These de-risking mechanisms will be most useful in riskier developing markets that otherwise could not offer commercial returns.

The increasing investment opportunity coming in irrigation infrastructure will require a mix of these mechanisms. Investors should actively develop opportunities to get upside exposure to water that will help offset the water risks particularly pervasive in sectors with most exposure to the natural environment, including agriculture, energy, and mining. Boxes 2 and 3 (below) summarise two case studies of where such private investment has already taken place, demonstrating the types of opportunities investors that forward-looking investors will be capitalising in the coming years.

Box 2 Case Study: The Guerdane Irrigation Scheme

Location: Morocco

Scale: 10,000 ha under irrigation for 670 farmers, US\$85M for capital expenditure, of which US\$50M was a government grant and concessional loan and US\$35M was from the private bidder

Private party: A consortium led by Omnium Nord-Africain (ONA), a Moroccan industrial conglomerate that was listed on the Casablanca stock market for a quarter of its value until its merger in 2010 with Societe Nationale d'Investissement

Public party: Government of Morocco

Engagement: Water User Associations

Challenge:

- Private wells pumping into the underground aquifer were the only source of irrigation
- Due to overexploitation, the groundwater level was decreasing 2.5 metres/y and citrus farming was becoming unsustainable
- The area planted with citrus fruit decreased by 22% from 1995-2002

Solutions:

- The Government of Morocco allocated in their watershed management plan water from dams 40 miles away and sought a private partner to construct a distribution system and a 300km water irrigation network
- The Government tendered the project on the basis of the lowest water tariff to make accessible water affordable to the most farmers. It committed to financing 50% of the cost to achieve this end. Two private parties bid. The winning bidder provided a tariff lower than the price citrus farmers had been previously paying for irrigated groundwater. In spite of this, because of the 50% subsidy, two-thirds of the tariff was devoted to covering the capital cost
- The Government awarded the 30-year PPP to ONA to Build, co-Finance, Own, Manage and Transfer the distribution system and irrigation network. Publicly listed ONA invested US\$ 35M off its balance sheet alongside US\$50M from the Government of Morocco in grant and concessional loan finance. Ownership is ONA's until the end of the concession when it will transfer to the government. The PPP:
 - ◇ Grants ONA exclusivity to channel and distribute irrigation water in the area

- ◇ Allocates to ONA construction cost overrun and delay risks and payment collection risk
 - The PPP partially de-risked ONA's payment collection risk by having an initial subscription campaign carried out whereby 80% of farmers paid initial fees covering the average cost of on-farm connections
- ◇ Shares the risk of water security between the parties
 - Caps ONA's consequential revenue loss due to water shortage at 15% after which the Government compensates ONA
 - Applies a tariff surcharge of 10% to farmers in case of drought

Successes:

- Reduced risk of depleting underground water resources
- Mobilised US\$35 million of private investment
- A lower than expected unit water price
- 100% connection rate to intended farmers by 2009, 5 years after the project was awarded
- Improved incomes for 11,000 people

Source: Vivid Economics, based on World Bank, 2016 and IFC, 2013

3.2 Better management of water risk

Risks are large, pervasive, uncertain and currently infrequently assessed, but investor due diligence can reduce exposure and encourage best practices. The fact that most scarcity is driven by new growth means that due diligence now could ward off large future losses from decreased revenues, increased costs, stranded assets, and restricted access to equity or debt. It also means that improved due diligence represents a no-regrets strategy for investors irrespective of the uncertainties associated with climate change or policy response. A variety of toolsets already exist, such as those in Figure 5 or offered by PRI, that can help investors improve ESG assessments related to water and incorporate water risk analysis into bottom lines when evaluating both new deals and existing portfolios.

Figure 5 Existing risk evaluation and due diligence tools available to investors

Tool/Dataset/Resource	Best Suited For	Primarily a...	Evaluates Water Risk Exposure	Evaluates Corporate Response to Risk	Corporate Locations Embedded in Tool	Financial Data in Output
Bloomberg Water Risk Valuation Tool (WRVT)	Equities	Financial Model	●	○	●	●
CDP Corporate Water Database	Equities	Questionnaire & Dataset	●	●	◐	◐
Ceres Aqua Gauge™	Equities	Questionnaire	○	●	○	○
Ceres SEC Water Risk Search Tool	Equities	Data Mining	●	◐	○	◐
Earth Genome	Private Equity	Maps & Datasets, Services	●	◐	○	◐
EcoLab/Trucost Risk Monetizer	Equities	Model & Datasets	●	◐	○	●
Equarius waterBeta	Equities	Financial Model, Services	●	◐	◐	●
InVEST-Integrated Valuation of Ecosystem Services & Trade-Offs	Private Equity	Models, Datasets, Services	●	●	○	◐
NCA Bank Drought Stress Test Tool	Bank Credit Portfolios	Scenario Models, Datasets	●	○	○	●
NCA Corporate Bonds Water Credit Risk Tool	Corporate Bonds	Model & Datasets	●	○	◐	●
Sustainable Water Management Profiling	Municipal Bonds	Assessment Standard	●	●	N/A*	N/A
WRI Aqueduct™	Equities	Maps & Datasets	●	○	◐**	○
WWF-DEG Water Risk Filter	Equities	Maps, Datasets, Models	●	◐	○	◐

● Has Information ◐ Some Information ○ No information

For more details and more ESG research resources see Toolkit Database of ESG and Water Resources

* Profiles Water Agencies

** If used in Bloomberg corporate location overlay possible

Source: Ceres Investor Water Toolkit

Investor demand for improved tools and more direct ways of accounting for water risks in company valuations will help drive the market. Though the ESG toolsets are an important step in reducing water risks, investors and financial regulators currently lack forward-looking, quantitative assessments of how mismanaged water stress will affect asset returns – and how more effective management, led either by the private or public sector, may alleviate this problem. The datasets and techniques exist to create such tools but have yet to come together to create something that works for investors. Similar information would be useful to businesses themselves as well as to governments in thinking about how to manage jurisdictional water risks, so investor demand may ultimately help reduce the contribution of weak governance to business risks. Building out comprehensive economic financial analysis that captures both the positive and negative externalities to those beyond the intended beneficiaries, make use of natural capital accounting valuations and carry out systems river basin impact analysis will spur both supply and demand for irrigation investment.

Strong due diligence is similarly required in making irrigation investments, where principled processes will lead to good investments. Investment processes predicated on productivity, on transparency and on equitable and sustainable water management will necessarily involve pervasive due diligence involving local stakeholders to assess ESG risks best understood by them, to understand local political dynamics, tenure of land, fisheries and forests and access to water. They will not prevent indigenous practices that are productive and sustainable. They will involve due diligence on the irrigation project’s promise to enhance food security and nutrition, and on farmers’ ability and willingness to pay a cost-recovery tariff for infrastructure that achieves those ends. They will involve engaging with Water User Associations or organising farmers into Water User Associations where none already exist. Doing so will provide transparency in management and accountability for the farmers, will provide the investor with more regular

irrigation service fee collection, and will engage farmers in the proper use and maintenance of the irrigation asset (see Box 3).

Box 3 Case Study: Compagnie d'Aménagement des Coteaux de Gascogne (CACG) / Associations Syndicales Autorisées (Water User Associations), France

Location: France

Scale: 55 schemes with 200,000 ha under irrigation and US\$ 600M in assets

Private party: Compagnie d'Aménagement des Coteaux de Gascogne (CACG). CACG is 16% owned by Groupe Credit Agricole, a publicly listed French bank

Public party: Government of France

Engagement: Water User Associations

Challenge:

- 1960-70: CACG had been operating irrigation infrastructure with subsidies
- 1972: The Government of France started phasing out operational subsidies
- CACG had to find a water price for farmers that would be acceptable to them but also enable sufficient return on investment in maintenance

Solutions: CACG reacted by

- Creating a user committee
- Cutting operating costs by reducing staff by 50%
- Increasing water tariffs to irrigators
- Entering the concession model for larger investments, whereby CACG would finance operations and maintenance expenses from its own balance-sheet and recover the costs from water tariffs to farmers. Credit Agricole, a publicly-listed French bank that has a shareholding in CACG, would have been on hand for working capital loans
- Engaging with Water User Associations (ASAs in France) on the principles of consultation and accountability for small- and medium-sized irrigation schemes, and entering into maintenance contracts to service them. CACG took the financial risk of financing spare parts inventory

Successes:

- Phasing out of subsidies resulted in more efficient service delivery
- CACG managed to deliver quality maintenance for a cost that farmers accepted

Source: Vivid Economics, based on World Bank, 2016

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Company profile

Vivid Economics is a leading strategic economics consultancy with global reach. We strive to create lasting value for our clients, both in government and the private sector, and for society at large.

We are a premier consultant in the policy-commerce interface and resource- and environment-intensive sectors, where we advise on the most critical and complex policy and commercial questions facing clients around the world. The success we bring to our clients reflects a strong partnership culture, solid foundation of skills and analytical assets, and close cooperation with a large network of contacts across key organisations.

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