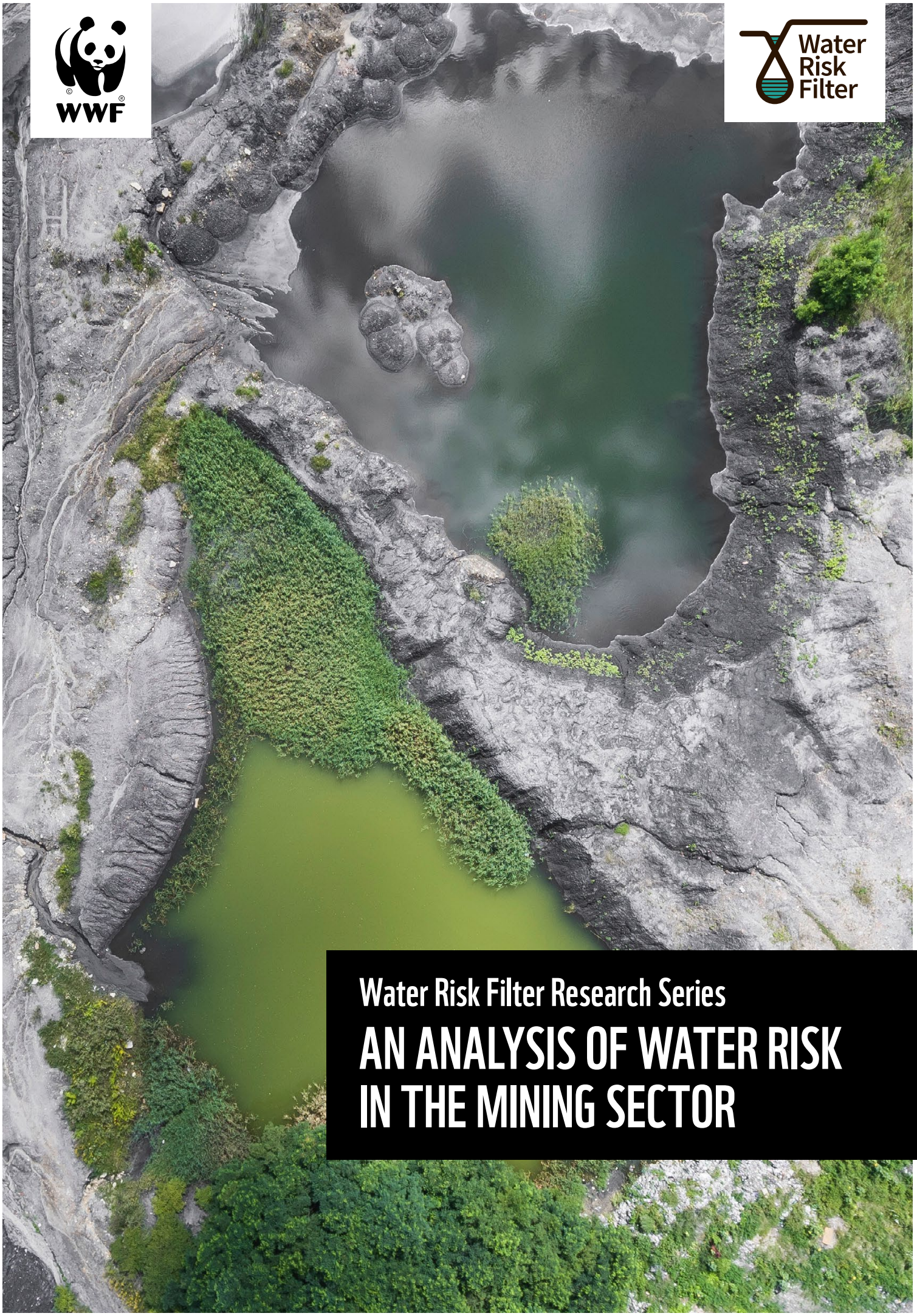

Water Risk Filter Research Series

AN ANALYSIS OF WATER RISK IN THE MINING SECTOR

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Date January 2020
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A. Manciagli/Getty Images | thexfilephoto/Getty Images

Please cite this report as: Morgan, A. J. and Dobson, R. (2020) An analysis of water risk in the mining sector. Water Risk Filter Research Series Volume 1, WWF

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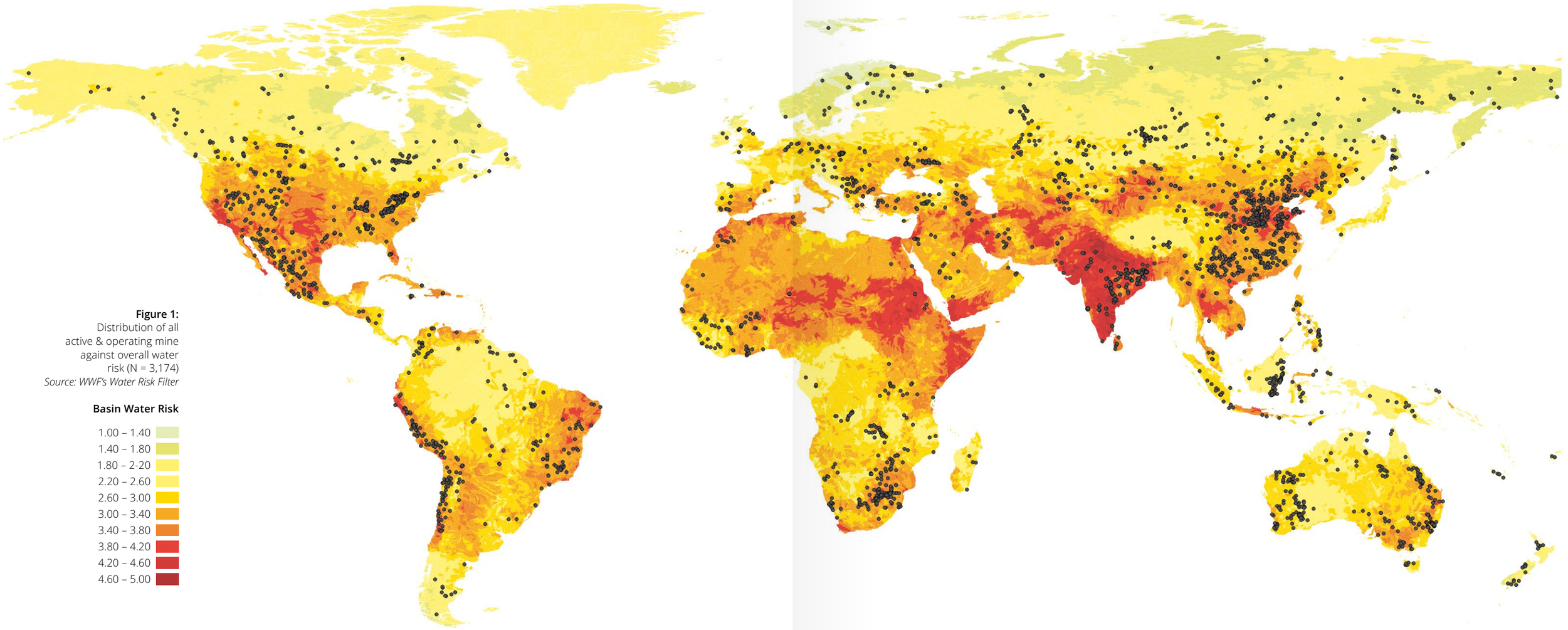


Figure 1:
Distribution of all active & operating mine against overall water risk (N = 3,174)
Source: WWF's Water Risk Filter

EXECUTIVE SUMMARY

The mining sector is often pointed to as a sector that is materially exposed to water risks – and one that has taken significant steps to respond to such risks. But, to the best of our knowledge, there has been no exhaustive analysis of water risks facing the mining sector, even though the sector has relatively comprehensive databases with asset-level data from across the globe.

This first such analysis sought to evaluate the basin water risk of all 3,714 active, operating and expansion mine sites from around the world using the WWF Water Risk Filter and the S&P Global Market Intelligence mining database[1]. Results were summarized by country, basin, commodity and company.

Overall, metal and mineral commodities are exposed to moderately high levels of basin water risk.

Reputational water risk and flood risk issues often came to the forefront, although the analysis also highlights the important need to treat each site uniquely as risks vary considerably – far more within commodities than between commodities. Countries such as China, South Africa, India and Australia arose several times due to a combination of risk factors – including water scarcity, which is a highly material basin water risk. However, what also emerged from the analysis was the relatively high levels of water risk posed by flood risk in many of the basins (and for many commodities) – an issue which has resulted in tragic consequences in the past decade with the failure of several significant and high profile tailing dams in Brazil and Canada.

Countries such as China, South Africa, India and Australia arose several times due to a combination of risk factors.

The analysis also highlighted the – at times significant – differential scores of select water scarcity metrics (Water Depletion, Baseline Water Stress and Blue Water Scarcity) used in the Water Risk Filter, pointing to the need to consider a range of water scarcity models to inform decisions.

WWF believes that this analysis represents a first step towards a future in which asset level data contributes to more sophisticated and accurate Environmental, Social and Governance (ESG) analysis for investors and companies reliant upon metals and mining. Future analysis would benefit from production data (even at a country level), average operational risk data, and water stewardship responses from companies. The combination of these elements would provide analysts with the information to engage in a more comprehensive analysis of risk exposure and response for the mining sector.

1) S&P Global Market Intelligence, a division of S&P Global. "SNL Metals & Mining". Accessed through S&P portal. https://www.spglobal.com/

1. INTRODUCTION: MINING AND WATER RISK

Aside from agriculture, perhaps no sector is as exposed to water risks as the mining sector. From dependencies (such as the fact that many deposits lie in arid places combined with the high water needs to process ore) to the impacts (such as potential impacts on water quality and local water rights conflicts), the mining sector is at the forefront when it comes to water challenges.

When water risks manifest for mine sites, they can be extremely costly for companies and their shareholders. The CDP Global Water Report highlighted that the extractives sector reported over US$20 billion in financial impacts in 2018 alone (CDP, 2018). Whether it is lawsuits and clean-up costs from contamination (e.g., Samarco tailings dam failure) or the costly need for new water sources (e.g., Escondida's desalination facility), individual impacts can run into the billions. While these examples may be at the upper end of the spectrum of water risks impacting financial statements, local water resource conflicts resulting in project delays are not uncommon and quickly add up for large assets.

The International Council for Mining and Metals has established various guidance materials for the sector on water stewardship.

Accordingly, it is unsurprising that the mining sector has been heavily engaged on water issues for some time. The International Council for Mining and Metals, which represents over 25 of the world's largest mining companies, has established various guidance materials for the sector on water stewardship (ICMM, 2019).

It is worth highlighting that water risk exposure is not simply a matter of water stress exposure, which is the one dimension that is considered by most Environmental, Social and Governance (ESG) data analysts who evaluate water risk. Rather, to properly understand water risk, one must account for not only basin and operational water risk exposure, including physical, regulatory and reputational dimensions, but also contextually relevant water stewardship responses (WWF, 2019).

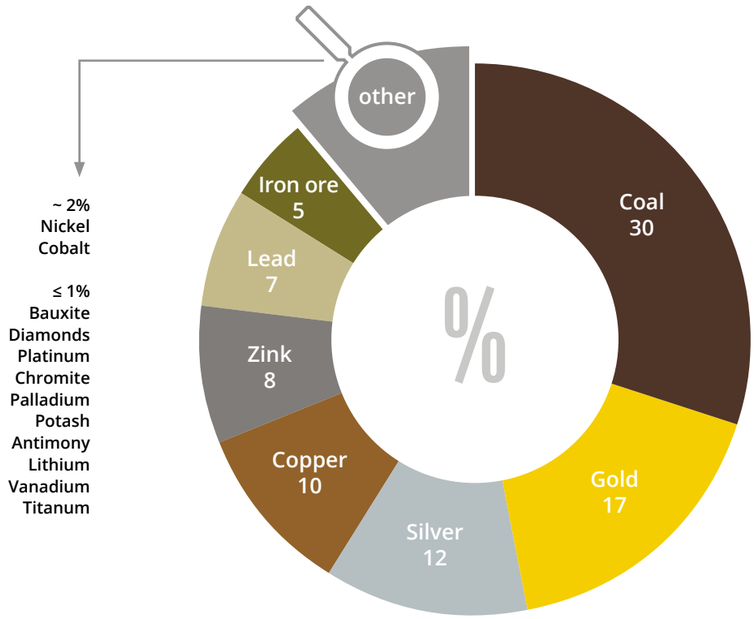
To this extent, to the best of our knowledge, there has been no exhaustive analysis of water risks facing the mining sector. Accordingly, this research report provides a global analysis of the mining sector, drawing on current water risk information from the Water Risk Filter and S&P's Global Market Intelligence mining database. The work also seeks to serve internal analysis needs within WWF and as such, focuses attention on select commodities of high relevance for conservation needs.

2. METHOLOGY

The general approach employed in this analysis was to harnesss the Standard & Poor's (S&P) database and combine it with basin water risk scores from the WWF Water Risk Filter (WRF, Version 5.0, November 2019)[2].

Data from the WRF (polygon shapefiles) were spatially joined to the S&P Global Market Intelligence data set (points) using QGIS (v.2.8), resulting in a complete set of basin water risk indicators for each mine site in addition to all data provided by S&P[3]. There are numerous pieces of information provided by S&P Global Market Intelligence per site, including an activity and development status, operators and owners, and mined commodity (both primary and non-primary). In order to focus more specifically on existing mine production, mine sites labelled "active", "operating" or "expansion" within the S&P Global Market Intelligence data were used for this analysis – ending up with 3,174 out of the overall total of 34,584 reported sites in the S&P Global Market Intelligence database. While all of the mined commodities were accounted for in the analysis, several commodities were not visualized as they made up too small a proportion of mining sites (including Graphite, Heavy Mineral Sands, Ilmenite, Lathanides, Manganese, Molybdenum, Niobium, Phosphate, Rutile, Tantalum, Tin, Tungsten, and U308). The composition of commodities across these active sites can be seen in Figure 2.

Figure 2: Percentage of active mines by primary commodity. NB: percentages labelled for those commodities with a percentage of 2 or greater of the total number of mine sites



2) For details on the data and methods of the WRF, please see here: https://waterriskfilter.panda.org/en/About/DataAndMethods

3) For further details on the S&P Global Market Intelligence mine site database, please visit: https://www.spglobal.com/marketintelligence/en/campaigns/metals-mining

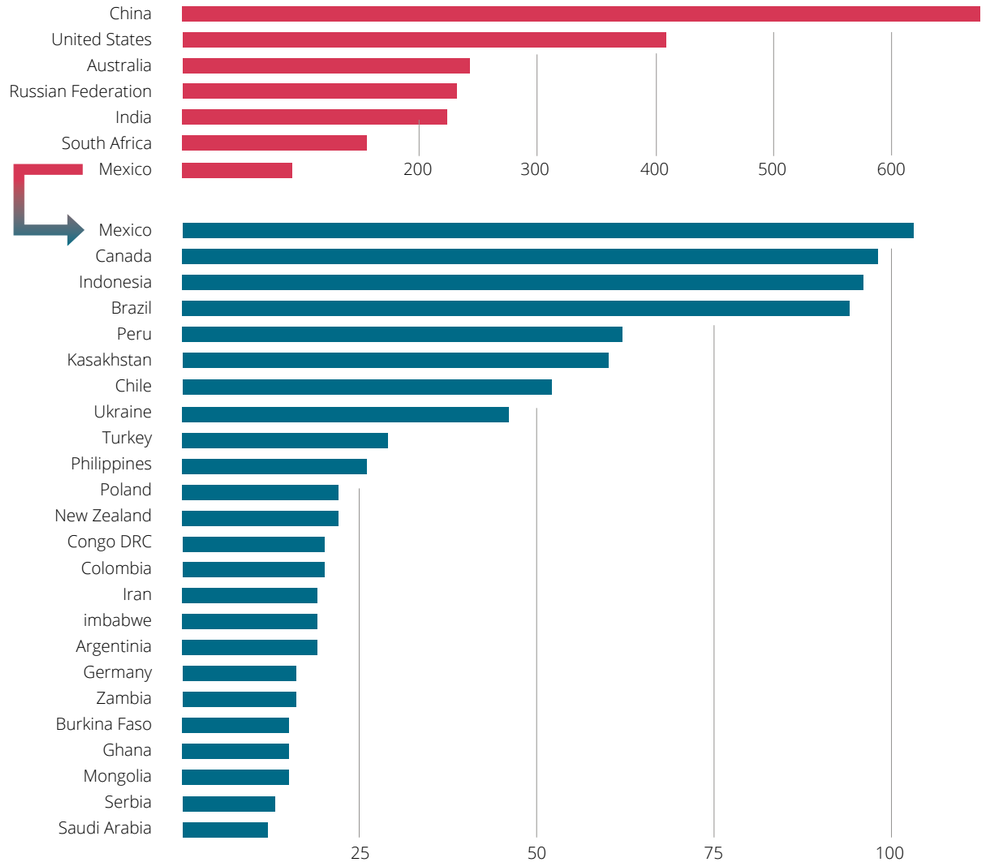


Figure 3: Distribution of active & operating mine sites by country

The distribution of these mine sites by country can be seen in Figure 3, which focuses on countries with more than five mine sites. China accounts for 21 per cent (675) of the mine sites with the USA in second with 13 per cent and Australia in third with 7 per cent. Indeed, there is a strong country concentration with the top 10 countries accounting for 73 per cent of all active and operating mine sites.

From a basin perspective, the concentration is not quite as focused as it is from a country perspective, with the top 10 basins accounting for only 35 per cent of the total mine sites. Many of these basins also represent some of the larger basins in the data set (as all basins are not of equal sites). Figure 4 illustrates those basins with more than 10 mine sites.

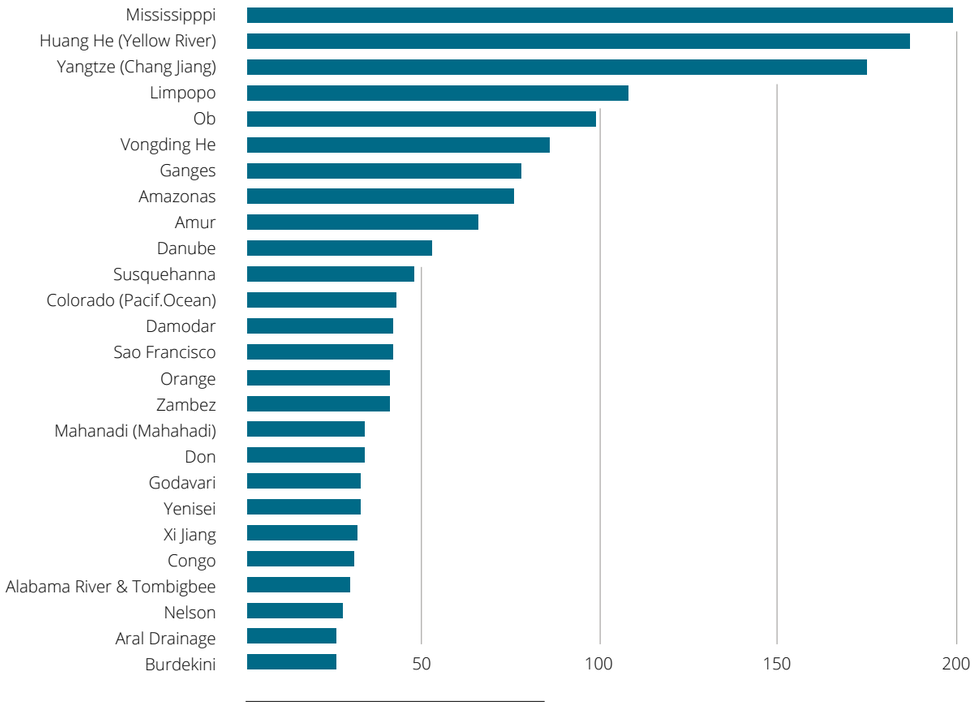
The resulting merged data table was then summarized in Excel and pivot tables were employed to analyse the mining risk data. Owing to the large volumes of data, this initial analysis only evaluated select risk types and from a commodity, country, corporate and major basin perspective. This research report is generally restricted to analysis of overall water risk, the three broad risk categories (physical, regulatory and reputational), and lastly, a few key physical risk sub-categories (scarcity, flooding, water quality and ecosystem service status).

Since mines typically have a primary commodity but may mine multiple minerals/metals, scores for any given commodity were taken from all mine sites that listed that commodity even if it was not the primary commodity. Similarly, for company scoring, values were taken from all mine sites that the company had a level of ownership in, not just those for which they were the primary operator.

Furthermore, since the S&P Global Market Intelligence database does not contain production volumes of ore or metals, it is not possible to weight the results by production. Accordingly, mines are equal weighted for the purposes of this analysis, which will result in some skewing of the results. This means that for commodities or companies that have lots of low production mines, but a few very high production mines, results may paint a different picture than what would result via a production-weighted analysis.

In addition to commodities, the analysis also focused on select companies. Owing to the considerable sector consolidation, these were drawn from the top mining companies by market capitalization (Annex A - data from Forbes Global 2000[4]) – often referred to as the 'majors' in mining. In theory, the data could support a full analysis of all companies in the future. To maintain a reasonable scope of work, major river basins[5] were used to summarize mining risk within the basin.

Figure 4: Distribution of active & operating mine sites by basin



4) Forbes (2019) The World's Largest Public Companies – Diversified Metals & Mining. Available online: https://www.forbes.com/global2000/list/#header:marketValue_sortreverse:true_industry:Diversified%20Metals%20%26%20Mining Last accessed: December 13, 2019.

5) Global Runoff Data Centre (2007) Major River Basins of the World. Available online: https://www.bafg.de/GRDC/EN/02_srvcs/22_gslrs/221_MRB/riverbasins.html?nn=201570 Last accessed: December 13, 2019.

3. RESULTS AND KEY TAKEAWAYS

3.1 Summary of commodity risk

In order to present all commodities, spider graphs were used to present average risk scores as well as rankings. These can be seen in Figure 5 below, for both broad risk categories (Fig. 5a) as well as physical risks (Fig. 5b), as well as via a ranked table format (Table 1)

Figure 5a: Spider diagram of basin water risk by mining commodity

Figure 5b:

Several insights emerge from this analysis:

1) **In general, all commodities have a moderate level of water risk exposure.** While no commodity is very highly exposed to water risks, conversely, no commodity is exposed to very low water risks either.

2) **Several commodities, especially those with higher water risk scores, have spatial clustering.** For example, 50 per cent of the active and operating mines producing chromite are located in South Africa's Limpopo basin. Similarly, over half of the active and operating platinum mines are also in the Limpopo. There is also significant spatial clustering of coal in certain high water risk countries such as India. This spatial concentration of water risk should be of concern to those who depend upon, or are invested in, such commodities.

3) **Overall chromite ranks highest followed by coal, palladium, platinum and bauxite.** However, it should be noted that these commodities tend to be more exposed to flood, quality and ecosystem service degradation risks rather than scarcity risks.

4) Broadly speaking, **reputational water risk is higher than the physical or regulatory water risks** facing mining commodities.

5) Of the physical water risk exposure, generally, **flood risks are the highest followed by water quality, ecosystem service loss and then water scarcity.** At the top of the list of commodities exposed to flood risk was antimony. This, again, is in part due to a reasonably high concentration of mines in parts of China, where a third of the active, operating antimony mines are located.

Table 1: List of commodities by average basin water risk

Commodities ▼	Number of Mine Sites	Overall Water Risk	Physical Water Risk	Regulatory Water Risk	Reputational Water Risk	RC1 Water Scarcity	RC2 Flooding	RC3 Water Quality Status	RC4 Ecosystem Service Degradation
Chromite	43	3.3	3.4	2.2	2.8	3.1	3.2	3.4	3.0
Coal	1270	3.3	3.0	2.3	3.7	2.2	3.5	3.5	3.2
Palladium	39	3.2	3.3	2.2	3.0	2.8	3.2	3.5	3.1
Platinum	44	3.2	3.2	2.1	3.1	2.7	3.2	3.5	3.0
Bauxite	55	3.2	3.0	2.5	3.5	2.3	3.4	3.1	3.0
Lead	303	3.2	3.0	2.4	3.5	2.4	3.4	3.2	2.8
Averages	**3174**	**3.1**	**3.0**	**2.4**	**3.5**	**2.3**	**3.2**	**3.2**	**2.9**
Zinc	350	3.1	3.0	2.4	3.4	2.3	3.3	3.2	2.8
Antimony	22	3.1	2.9	2.4	3.3	2.0	3.8	3.1	3.1
Copper	405	3.1	2.9	2.5	3.1	2.5	3.1	2.9	2.7
Iron Ore	229	3.1	2.8	2.3	3.5	2.3	3.1	2.9	2.7
Silver	494	3.0	2.9	2.5	3.2	2.5	3.1	2.9	2.7
Potash	28	3.0	3.0	2.0	3.2	2.6	2.8	2.9	3.0
Gold	708	3.0	2.9	2.4	3.2	2.5	2.9	2.8	2.7
Lithium	16	3.0	2.8	2.2	3.6	2.5	2.8	2.4	2.5
Vanadium	15	3.0	2.8	2.3	3.4	2.1	3.0	3.3	2.8
Nickel	94	2.9	2.7	2.3	3.2	2.3	3.0	2.7	2.5
Cobalt	72	2.9	2.6	2.5	3.2	2.2	2.9	2.6	2.7
Diamonds	49	2.8	2.5	2.7	2.9	2.4	2.3	2.4	2.2
Titanium	15	2.7	2.5	1.9	3.3	2.1	2.7	2.6	2.6

3.2 Summary of top 10 companies

Table 2:
List of largest publicly listed companies and average basin water risk scores

Perhaps of more interest to investors is the water risk exposure of the world's largest publicly listed mining companies, which can be found in order of market capitalization in Table 2 and Figure 6. Water risk scores are shown for overall risk categories (left) as well as specific physical risk categories (right).

Commodities	Number of Mine Sites	Overall Water Risk	Physical Water Risk	Regu-latory Water Risk	Repu-tational Water Risk	RC1 Water Scarcity	RC2 Flooding	RC3 Water Quality Status	RC4 Ecosystem Service Degrada-tion
Coal India	151	3.8	3.4	2.9	4.5	2.5	4.1	3.9	3.2
Grupo Mexico (Southern Copper)	8	3.6	3.7	2.6	3.0	3.7	2.7	3.8	2.9
China Shenhua Energy	7	3.5	3.4	2.4	3.8	2.7	3.3	4.1	3.0
Freeport-McMoRan	8	3.3	3.0	2.7	3.5	3.1	2.1	2.5	3.0
Anglo American	19	3.2	3.2	1.9	3.6	2.8	3.4	2.9	3.1
Glencore International	50	3.2	3.2	2.1	3.3	2.7	3.4	3.2	2.9
BHP Group	21	3.0	2.9	1.7	3.7	2.9	3.3	1.8	2.2
Barrick Gold	6	3.0	2.8	2.3	3.4	3.1	2.0	1.8	2.7
Rio Tinto	18	2.7	2.3	1.9	3.8	2.3	2.9	1.4	1.6
Norilsk Nickel	4	2.0	1.7	1.9	2.7	1.4	1.8	1.8	2.3
Averages	**3174**	**3.1**	**3.0**	**2.4**	**3.5**	**2.3**	**3.2**	**3.2**	**2.9**

Several key insights emerge from this corporate analysis:

1) **The most exposed large public mining company from a basin water risk exposure perspective is Coal India, followed by Grupo Mexico (Southern Copper) and China Shenhua Energy.** To some extent, these scores reflect the strong geographical clustering of their operations in India (Coal India) and China (China Shenhua Energy). The small(ish) sample sizes for some companies (e.g., Barrick has 6 mines included in the analysis) also have a tendency to skew data to some extent.

2) **Broadly, all companies are exposed to high reputational water risks and not very exposed to regulatory water risks.**

3) **The two largest mining companies (BHP Billiton and Rio Tinto) are exposed to lower than average physical and regulatory water risks, but higher than average reputational water risks.** This reflects the fact that several of their assets lie in more temperate countries with stronger regulations, but greater scrutiny.

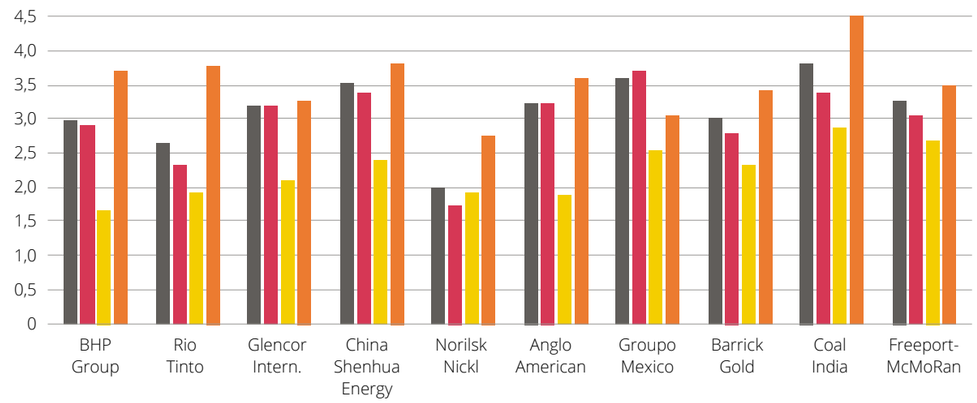
4) **Select companies are highly exposed to specific water risks.** For example, Grupo Mexico is highly exposed to water scarcity, while Coal India is highly exposed to flood risks.

5) **In unpacking water scarcity in greater depth, it is apparent that the specific indicator used makes a considerable difference.** For example, for BHP Billiton, the Water Depletion indicator scored an average of 1.5, while Baseline Water Stress scored an average of 2.8 and Blue Water Scarcity scored an average of 4.4. This highlights the importance of a multi-indicator approach to water risk, especially water scarcity.

6) **As with commodities, reputational water risk is considerably higher for most of the large public mining companies.**

7) **Several companies including India Coal, Anglo American, BHP Billiton and Glencore, are relatively highly exposed to basin flood risks.** This exposure, in particular due to the risk it poses to potential failure in tailings dams, merits attention.

Figure 6:
Water risk category scores for the largest publicly listed mining companies (in order or market capitalization)



3.3 Summary by major river basin

Mining, in general, is an activity that is heavily driven by the geographic distribution of geological deposits. As a result, spatial clustering of mining is not uncommon and therefore understanding clusters of active mine sites is important as these sites face similar basin water risks (Figures 1 & 7). Figure 7 shows aggregations of select commodities, which highlights the importance of geographical clustering of mine sites including within major river basins, while Figure 8 profiles those basins facing the highest levels of water risk (with a minimum of at least 5 mine sites).

6) HydroBASIN level 4

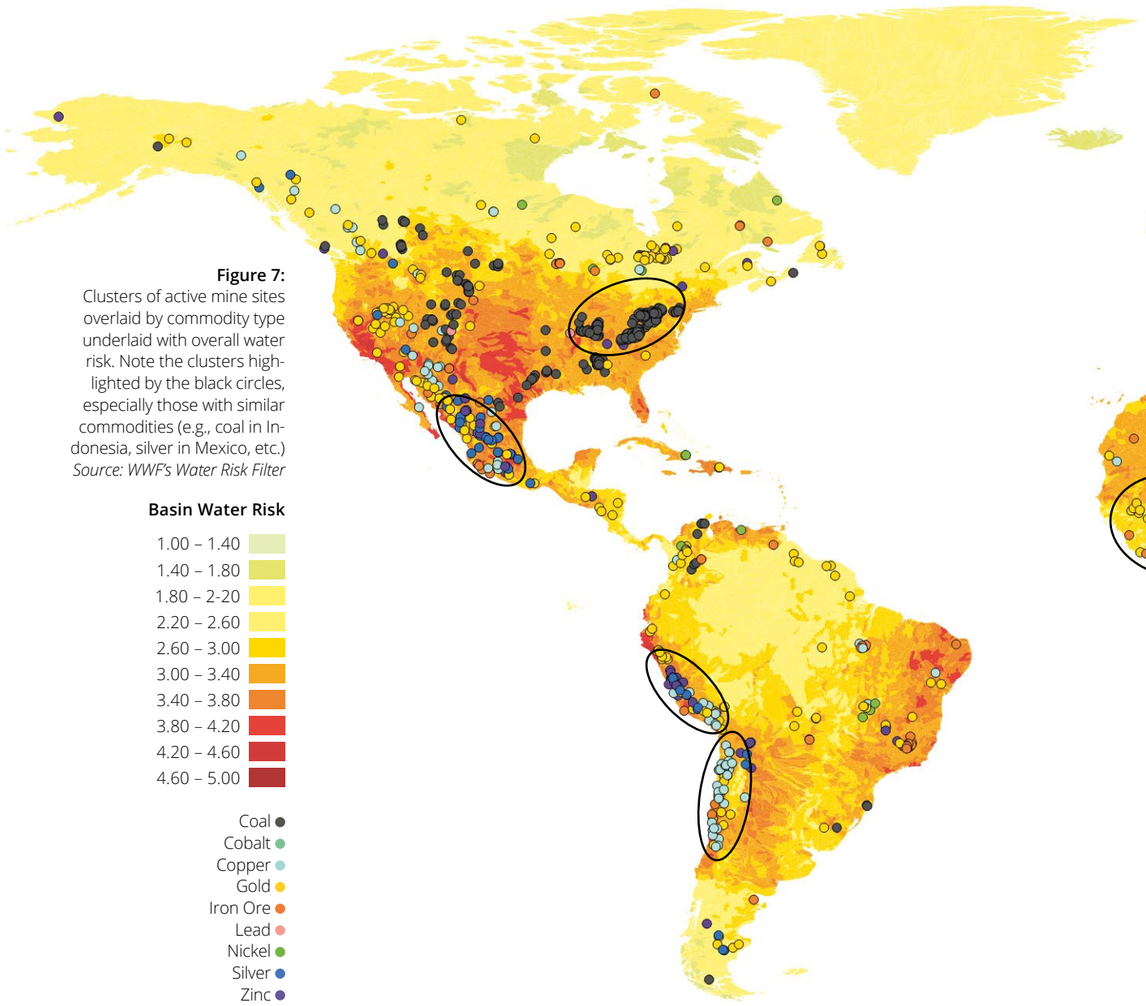


Figure 7:
Clusters of active mine sites overlaid by commodity type underlaid with overall water risk. Note the clusters highlighted by the black circles, especially those with similar commodities (e.g., coal in Indonesia, silver in Mexico, etc.)
Source: WWF's Water Risk Filter

Several key insights emerge from this spatial basin analysis:

1) **Several major river basin mining clusters exist:** Eastern Mississippi, North-eastern and Central Mexico, the Andean regions of Peru and Chile (Northern & Central), North-eastern South Africa, much of India (but especially the West), a large portion of North-eastern China, and Eastern Australia.

2) **The most at risk river basins are dominated by basins in South Asia.** These are at risk due to a combination of high reputational and physical risks, with flood risks being particularly high. In addition to basins in South Asia, two northern Chinese rivers (Yongding and Huang He) appear in the top 10 basins. The Huang He (or Yellow) river basin is notable because not only does it rank ninth in terms of basin water risk, but it also ranks second in terms of the number of mine sites. The only non-Asian basin is the Santiago in South America. It is also worth noting the 11th basin on the list: the Limpopo is the highest ranked basin in Africa and contains 107 mine sites, putting it fourth on the list of river basins in terms of the number of mine sites.

River basins in South Africa are at risk due to a combination of high reputational and physical risks ...

3) **Several commodities are highly clustered in one basin, with the Limpopo being of particular note, along with the Yangtze.** The following commodities have concentrations of over 20 per cent of global mine sites

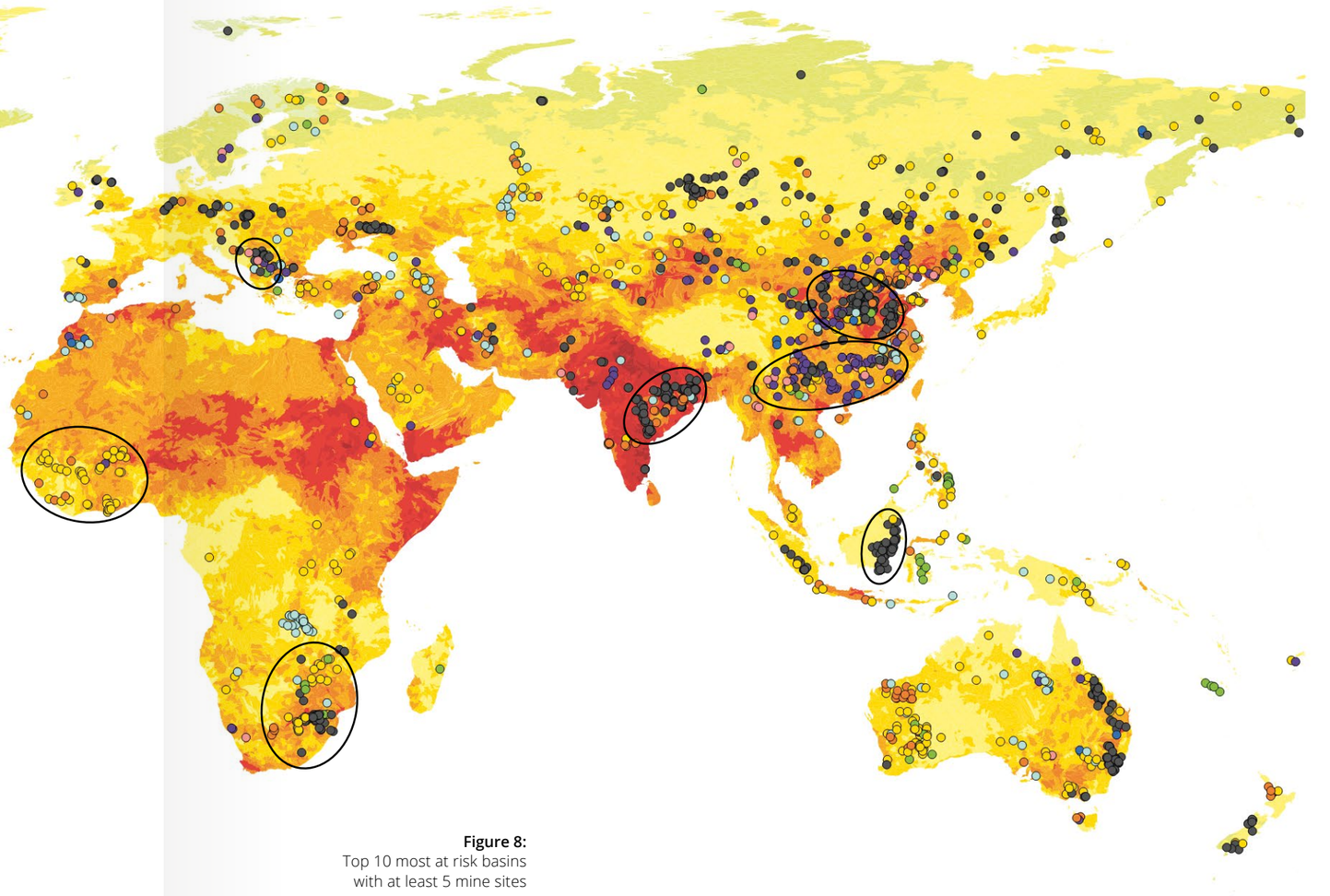
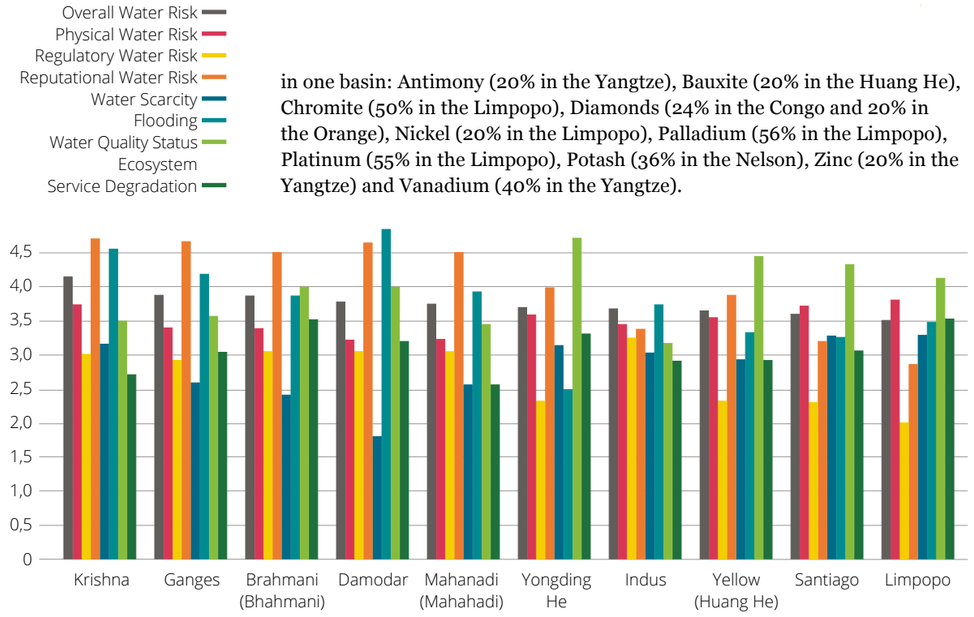


Figure 8:
Top 10 most at risk basins with at least 5 mine sites



in one basin: Antimony (20% in the Yangtze), Bauxite (20% in the Huang He), Chromite (50% in the Limpopo), Diamonds (24% in the Congo and 20% in the Orange), Nickel (20% in the Limpopo), Palladium (56% in the Limpopo), Platinum (55% in the Limpopo), Potash (36% in the Nelson), Zinc (20% in the Yangtze) and Vanadium (40% in the Yangtze).

3.4 Summary by country

Due to global scope and the importance of active mines for national economies, mine site water risk was also summarized by country.

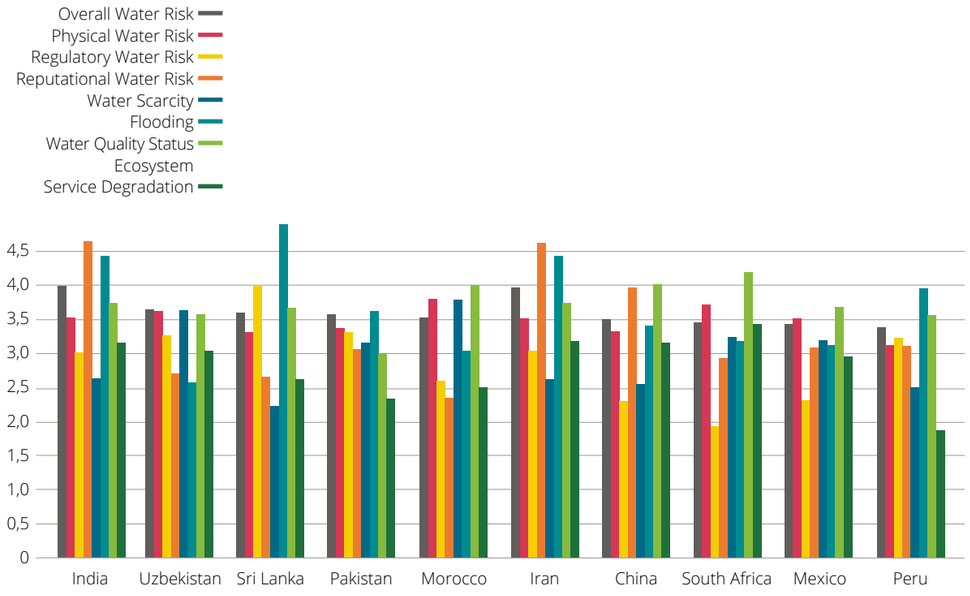
Several key insights emerge from this spatial country analysis:

1) **Several major basin mining clusters exist.** While several of the largest countries emerge as one might expect, including China, the USA, Australia, Russia and India, are also a significant number of mines in some other medium sized countries, including South Africa, Mexico, Indonesia, Peru, Kazakhstan and Chile.

2) **The most at risk countries are dominated by countries in South Asia.** As with the basins, the majority of the highest at-risk countries are in South Asia (4/10). What is notable is that unlike the basins, these countries have higher physical risk and lower reputational water risk. In addition to very high flood risks, these countries also face relatively high water scarcity. In addition to basins in South Asia, China and two African countries (Morocco and South Africa) and two Latin American countries (Mexico and Peru) also make the list.

3) **As with basins, several commodities are highly clustered in one country, with China and South Africa once again being of particular note.** The following commodities have concentrations of over 20 per cent of global mine sites in one country: Antimony (32% in China), Bauxite (33% in China), Chromite (50% in South Africa), Coal (25% in the USA, 24% in China), Diamonds (24% in South Africa), Lead (48% in China), Lithium (31% Australia, 25% China), Palladium (54% in South Africa), Platinum (52% in South Africa), Potash (36% in Canada), Titanium (31% Australia, 25% China), Vanadium (40% in China) and Zinc (43% in China).

Figure 9:
Top 10 most at risk countries with at least 5 mine sites



3.5 Observations of select commodities

Coal

» Coal is the commodity with the highest number of mine sites. It also scores above average in terms of overall water risk. This stems, in part, from its heavy concentration in select basins in six countries: USA, China, India, Russia, Australia and Indonesia, which collectively account for 82 per cent of coal mine sites. A number of these countries face high reputational water risks, while the coal mine site basins for several of them (USA, India, Australia) all face higher-levels of flood risk.

Iron Ore

» Many of the countries with a large number of active, operating iron ore mines have high reputational risk.

» India, Brazil, China, and Australia face high reputational basin water risk.

» Of the physical basin water risks, flooding is the highest and particularly relevant for India, Philippines, Brazil, China and Mexico.

» With the exception of South Africa, there are minimal scarcity issues facing iron ore mine sites.

Gold

» Gold faces roughly average levels of water risk compared to other commodities. However, with an average overall basin water risk score of 3.0, this is still relatively high for over 700 mine sites.

» Many gold producing countries have higher levels of reputational risk, with some being very high (e.g., Brazil, China, Australia).

» Of the countries with a large number of gold mine sites, South Africa, Mexico, Chile, Zimbabwe and Burkina Faso are amongst those facing higher levels of physical water risk. Peru, Kazakhstan and Argentina have higher levels of regulatory water risk, while Peru and China are notable for their high flood risk.

Bauxite

» Bauxite faces slightly above average levels of water risk compared to other commodities.

Bauxite mine sites face higher regulatory water risks than other commodities.

» In particular, Bauxite mine sites face higher regulatory water risks than other commodities, particularly in India and Jamaica. However, reputational water risk is the highest risk facing bauxite mine sites and stems largely from the countries with the largest number of bauxite mine sites: China, Australia, Brazil and India

» Of the physical risks facing bauxite mining, flood risk is the greatest water risk with Jamaica, India, China and Brazil being countries of note.

Copper

» Copper faces relatively average levels of water risk compared to other commodities, although it is still high from an absolute perspective at 3.1.

» Reputational water risk and flood risk are amongst the highest scoring risks, but still relatively low compared to many other commodities. For reputational water risk, mine sites in China are of particular note along with Australia, USA and the Democratic Republic of Congo (DRC). From a flood perspective, China, Peru and South Africa are of particular note.

» Copper mine sites in Australia and Mexico are notable for water scarcity in that different models reflect highly differential scores for these mine sites: Water Depletion show average scores of 1.5 and 2.4 respectively, while Baseline Water Stress shows 3.2 and 3.6, and Blue Water Scarcity shows 4.6 and 4.4. Again, this is a good example of countries where additional local modelling would provide better information on whether or not water scarcity is of significant concern in these countries.

4. CONCLUSIONS AND NEXT STEPS

This analysis sought to highlight the ability of the WWF Water Risk Filter to take asset-level data for active and operating (and expansion) mine sites and aggregate that data for the purposes of tailored water risk exposure information. Such nuanced basin water risk data – if combined with additional operational water risk data and corporate water stewardship response data – would help to enable much more sophisticated approaches for ESG analysis when it comes to water.

The analysis, which covered 3,174 mine sites around the world, highlighted the risks to select commodities, countries, basins and companies. Spatial clustering tends to exacerbate water risk issues and highlights the risks for commodities that lack diverse production. Since this analysis lacks production volume data, it is difficult to fully determine exactly how large these risks are, but using number of mine sites as a proxy, it suggests that such concentration risks are indeed an issue for some commodities.

Overall, metal and mineral commodities are exposed to moderately high levels of basin water risk. Reputational water risk issues and flood risk issues often came to the forefront, though the analysis also highlights the important need to treat each site uniquely as risks vary considerably – far more within commodities than between commodities. Countries such as China, South Africa, India, and Australia arose several times due to a combination of risk factors – including water scarcity which is a highly material basin water risk. However, what also emerged from the analysis was the relatively high levels of water risk posed by flood risk in many of the basins and for many commodities.

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The database that underpins this work has significant potential for greater analysis. Production data, average operational risk data (potentially available from ICMM's data), and water stewardship response from companies (potentially available from CDP Water Security data) would offer the ability to engage in a more comprehensive analysis of risk exposure and response. WWF believes that this analysis represents a first step towards a future in which asset level data contributes to more sophisticated and accurate ESG analysis for investors and companies reliant upon metals and mining.

ANNEX A – LARGEST PUBLICLY LISTED MINERAL AND METALS COMPANIES

Global 2000 Rank (Forbes)	Company	Country/ Territory	Sales	Profits	Assets	Market Value
#109	BHP Group	Australia	$42.6 B	$6 B	$102.4 B	$138.3 B
#111	Rio Tinto	United Kingdom	$40.5 B	$13.8 B	$90.9 B	$100 B
#107	Glencore International	Switzerland	$219.8 B	$3.3 B	$128.7 B	$60.5 B
#152	China Shenhua Energy	China	$38.4 B	$6.7 B	$85.6 B	$57.3 B
#574	Norilsk Nickel	Russia	$11.6 B	$3 B	$15.3 B	$35.9 B
#261	Anglo American	United Kingdom	$27.6 B	$3.6 B	$52.2 B	$35.9 B
#594	Grupo Mexico	Mexico	$10.5 B	$1.3 B	$26.9 B	$24.3 B
#1084	Barrick Gold	Canada	$7.3 B	$-1.6 B	$22.6 B	$23.2 B
#583	Coal India	India	$14.4 B	$1.9 B	$18.3 B	$22.5 B
#401	Freeport-McMoRan	United States	$19 B	$2.3 B	$42.2 B	$20.3 B
#1147	Saudi Arabian Mining	Saudi Arabia	$3.8 B	$493 M	$26.1 B	$18 B
#1195	Newmont Mining	United States	$7.3 B	$341 M	$20.7 B	$17.6 B
#623	Teck Resources	Canada	$9.7 B	$2.4 B	$29 B	$14.1 B
#802	Shaanxi Coal Industry	China	$8.2 B	$1.7 B	$17.6 B	$13.9 B
#1484	Antofagasta	United Kingdom	$4.7 B	$498 M	$14.1 B	$12.9 B
#910	South32	Australia	$7.9 B	$1.4 B	$15.1 B	$12.5 B
#1274	Umicore	Belgium	$16.2 B	$374 M	$7 B	$11.8 B
#889	Zijin Mining Group	China	$15.8 B	$625 M	$16.4 B	$11.7 B
#1327	Alrosa	Russia	$4.7 B	$1.4 B	$5.9 B	$11 B
#1975	Goldcorp	Canada	$3 B	$-4.2 B	$17 B	$9.4 B
#826	China Coal Energy	China	$15.3 B	$534 M	$38.5 B	$9.1 B
#1060	Sumitomo Metal Mining	Japan	$8.6 B	$847 M	$16 B	$8.9 B
#1478	Boliden	Sweden	$6 B	$827 M	$6.6 B	$8.4 B
#1586	First Quantum Minerals	Canada	$4.1 B	$444 M	$23.5 B	$8.2 B
#1227	Jiangxi Copper	China	$32.4 B	$372 M	$15 B	$7.2 B
#1989	Korea Zinc	South Korea	$6.3 B	$479 M	$6.5 B	$7.1 B
#784	Yanzhou Coal Mining	China	$24.3 B	$1.2 B	$29.7 B	$5.5 B
#1840	Xinhu Zhongbao	China	$2.1 B	$514 M	$20 B	$5 B
#1938	Tongling Nonferrous Metals	China	$12.7 B	$107 M	$6.8 B	$4.2 B
#1721	Inner Mongolia Yitai Coal	China	$5.7 B	$630 M	$13.8 B	$3.9 B
#1457	Mitsubishi Materials	Japan	$15.6 B	$33 M	$17.8 B	$3.6 B
#1675	Nippon Steel Trading	Japan	$22.1 B	$210 M	$9 B	$1.3 B
#1729	Hanwa	Japan	$18.5 B	$153 M	$8.7 B	$1.2 B

Source:
https://www.forbes.com/global2000/list/#header:marketValue_sortreverse:true_industry:Diversified%20Metals%20%26%20Mining

Why we are here
To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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