

# Water Scarcity Report

*“Water is the ‘canary in the coal mine’ of human development. Increasingly polluted, pricey and in plastic, it is the symbol of our flawed economic development model. How humankind - and capitalism - now handles water shortages, surpluses and quality issues will determine their common future.”*

*Paul Hohnen, Sustainability Strategies*

In 2010, access to clean water received recognition as a basic human right through a majority vote of the United Nations General Assembly. According to the UN, nearly 900 million people have no access to clean drinkable water, almost 1.8 billion live in areas where water is scarce, and a further 1.6 billion live in countries, which lack the infrastructure to extract water from natural sources. The World Bank calculates that by 2030, water demand will exceed supply by 40 percent, as a growing world population demands more water for agricultural, industrial and personal use.

Climate change is aggravating the problem, causing recurring droughts and changing rainfall patterns. Reduced flows from, and the disappearance of, glaciers and the reduction of the polar ice cap will affect the flow of water. Furthermore, if sea levels rise, saline water is likely to contaminate fresh water supplies.

According to UNESCO, industry currently accounts for approximately 72 percent of global usage but this volume is rapidly increasing as emerging markets become more industrialized. Industry therefore faces a huge challenge to decrease the millions of tons of toxic sludge, heavy metals, solvents and other wastes that it discharges every year into the freshwater supply and to find ways of reducing its water consumption. Reportedly, some companies have begun shifting water-dependant operations close to assured sources.

RepRisk has tracked the overuse and pollution of water resources by industrial firms over the last six years. Criticism often comes from small NGOs and local newspapers that witness first hand the devastating effects that water shortage has on the surrounding communities.

Companies face a number of risks related to water scarcity and contamination. These include increased regulation or even the nationalization of water resources, and impeded operations due to loss of license or lack of water supplies required for production. They may also face litigation, public backlash, protests, or shareholder resolutions, leading to reputational damage and ensuing financial loss.

Over the past twelve months, RepRisk has detected criticism for overuse or wasting of water resources by companies and projects in three main industrial sectors:

1. Mining
2. Utilities
3. Oil & Gas

Mining has been criticized for using vast quantities of underground water and for discharging toxic waste into freshwater sources. Indigenous groups have organized protests against companies in the Utilities sector, claiming that power plants are destroying their communities by drying out their sources of drinking water and irrigation. The ‘fracking’ technique and tar sands extraction method used by the Oil and Gas sector have been harshly criticized for using vast quantities of water and for contaminating underground water reserves.

Although RepRisk also found criticism of overuse of water related to the Food and Beverage, Forestry, Paper, Alternative Energy and Biofuel Industries, this report focuses on the above three industries to analyze the impact of their operations on local communities and ecosystems.

**MINING SECTOR**

Companies involved in mining for coal, gold and uranium in particular have often been harshly criticized for the impacts of their operations on water resources. Environmentalists, local communities and experts have accused them of both overuse and contamination of water sources. Concerns have also been raised about the effects of drilling and extracting operations, often carried out in areas where water supplies are scarce.

Peabody Energy has continuously been criticized for the impact of its Black Mesa Coal Mine on the Dineh and Hopi communities in northeastern Arizona. Environmentalists claim that over the past 30 years, the company has drained 2.5 million gallons of water daily from the communities' only water supply.

Activists have targeted Gold Corp Canada for its mining operations in Latin America. In Argentina, its Cerro Negro gold mining project has been criticized for the company's usage of underground water, which allegedly caused water shortages for local residents. In Guatemala the company's Marlin Mine has been continuously criticized for pollution of water sources.

There have been repeated warnings that Barrick Gold's Pascua Lama and Veladero mines in Argentina are reducing the size of the glaciers located in the central Andes. In July 2011, opponents of the company's Pueblo Viejo Mine, in the Dominican Republic alleged that it would generate 6,736 million cubic meters of wastewater annually.

In June 2011, Black Mountain Resources and Massey Energy, among others, were criticized for involvement in the controversial practice of mountaintop removal coal mining, which allegedly destroys water sources.

Civil society organizations in Bangladesh have been fighting against the Phulbari Coal Project, pursued by Global Coal Management Resources, claiming that the project would reduce access to drinking water and irrigation sources for over 22,000 people.

In late 2010, the shareholders of BHP Billiton opposed the company's decision to move into uranium mining in Australia. The Olympic Dam uranium/copper mine in South Australia was harshly criticized for its unsustainable extraction of 37 million liters of water per day. Furthermore, an Australian senator expressed "deep concerns" over Cameco's proposed Kintyre Uranium Project. Cameco predicted a water usage of five million liters a day and warned of possible groundwater contamination.

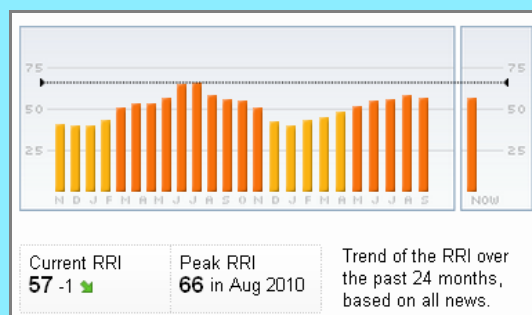
**Mining projects related to water scarcity:**

1. Back Mesa Coal Mine (USA)
2. Cerro Negro Coal Mine (Argentina)
3. Olympic Dam Mine (Australia)
4. Pueblo Viejo Mine (Dominican Republic)

**Mining companies involved in water scarcity issues:**

1. Barrick Gold
2. Black Mountain Resources
3. BHP Billiton
4. Global Coal Management Resources
5. Peabody Energy

**RepRisk Index (RRI) for Mining Sector\***



\*RRI calibration: 0-24 = low risk exposure ; 25-49 = medium risk exposure ; 50-74 = high risk exposure; 75-100 = very high risk exposure  
 The RRI graph for the Mining Sector displayed covers the entire scope of RepRisk ESG issues, including Overuse and Wasting of Resources.

**UTILITIES SECTOR**

Fossil fuel and nuclear plants have been repeatedly criticized over the past twelve months for using huge quantities of water for cooling and ongoing maintenance. UNESCO estimates that industry uses about 22 percent of the global freshwater withdrawal, and that approximately 63 percent of this is used by the utilities sector for hydro, nuclear and thermal power generation.

Nuclear plants currently consume slightly more water than those fired by fossil fuels, but during the last year, US water experts have warned that new methods of CO2 capture, aimed at limiting greenhouse gas emissions, will increase water use in coal and gas-fired plants by 50 to 90 percent.

RepRisk has detected strong criticism of governments that support these controversial power projects as well as of the companies involved in their construction. The international financial organizations that finance them have also been strongly criticized.

Western experts have claimed that power plants use massive amounts of freshwater. In the US, the coal-fired, Merrimack Power plant has been criticized for using 287 million gallons of water a day and for causing water pollution. Opponents of the Sunflower Coal Plant in Texas claim that it will contaminate and draw down water resources. In the Philippines, the Davao Coal Plant will allegedly extract at least 1,500 cubic meters of freshwater a day from the city’s aquifers and the Fukushima accident had a massive impact on water sources in Japan.

Indigenous communities in Brazil, India, Ethiopia and Sudan have staged huge protests against projects such as the Belo Monte Dam, the Orissa Power Station, the Gilgel Gibe III Dam and the Merowe Dam, claiming that these mega power projects are destroying their communities. They allege that the reservoir dams stop the downstream flow of water and cause drinking water and irrigation sources to dry up and fish stocks to be depleted. There have also been massive protests against the HydroAysen Hydro Electric Project in Chile, which will reportedly affect the region’s watershed.

Utility companies in Europe and North America have also been criticized for pipeline leaks and for leaking sewage and toxic waste into freshwater supplies, and in Australia, Delta Electricity has allegedly polluted Sydney’s water supply with toxic chemicals.

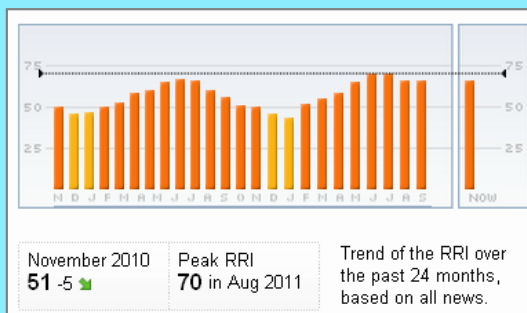
**Utility projects related to water scarcity:**

1. Gilgel Gibe III Dam
2. HydroAysen Project
3. Belo Monte Dam
4. Merowe Dam
5. Orissa Power Project
6. Pilgrim Power Station

**Countries developing controversial projects in the Utility sector:**

1. Ethiopia
2. Chile
3. Brazil
4. Sudan
5. India
6. USA

**RepRisk Index (RRI) for Utilities Sector\***



\*RRI calibration: 0-24 = low risk exposure ; 25-49 = medium risk exposure ; 50-74 = high risk exposure ; 75-100 = very high risk exposure  
 The RRI graph for the Utilities Sector displayed covers the entire scope of RepRisk ESG issues, including Overuse and Wasting of Resources.

**OIL AND GAS SECTOR**

The overuse and waste of invaluable water resources within the oil and gas sector is often related to the practice of hydraulic fracturing (“fracking”) or tar sands extraction. Fracking, a process patented by the US company Halliburton, uses huge quantities of water, which is pumped underground together with sand and chemicals, to break apart rock formations and release gas.

In the past 12 months alone, RepRisk detected widespread criticism against fracking in locations across the globe, including the US, Europe, and South Africa. Much of this criticism focused on water contamination. In Poland, critics expressed concern about the effects of fracking on water sources. In France, Greenpeace called on the government to revoke the drilling licenses of Hess Corp and Toreador Resources due to concerns about excess water consumption and pollution. In South Africa farmers are opposing plans by Sasol and Shell to drill for gas using the fracking technique, claiming that it uses valuable water resources and produces toxic wastewater.

Similarly, tar sands extraction has proved to be highly contentious, with the majority of water-related criticism focused on operations in Canada and the US. In the Canadian province of Alberta, local authorities filed 19 lawsuits against the Norwegian company Statoil for alleged violation of water usage at its Leismer Oil Sands Project. Also in Alberta, a USD 33 million lawsuit targeted Encana Corp for alleged methane-contamination of water resources. In Utah, environmentalists claim that Earth Energy’s planned oil sands operations will pollute groundwater. In April 2011, a New York Times article alleged that TransCanada’s Keystone XL oil pipeline project might threaten underground reservoirs in the US.

Outside of North America, Total’s test mining of tar sands around Madagascar’s Bemolanga and Tsimiroro Oil Fields has been strongly criticized due to potential impacts on the water supply of over 120,000 people should it proceed with the drilling. Shareholders at the annual general meetings of Total, Exxon and Chevron have also voiced concerns about tar sands activities.

Other gas extraction methods have also been criticized in relation to the overuse or contamination of water resources. In Australia, environmentalists oppose the Queensland Curtis LNG Project and the gas projects of Santos, Shell, ConocoPhillips and the BG Group in Queensland. In Nigeria, Shell’s pollution of water sources due to pipeline ruptures was again highlighted in the past year.

In Bolivia, indigenous leaders have opposed the exploitation of the Tarija natural gas reserves. In Puerto Rico, the proposed Via Verde pipeline allegedly threatens the country’s water supply, whilst in Ecuador, critics claim that Ivanhoe Energy’s Pungarayacu Oil Field will contaminate and deplete groundwater.

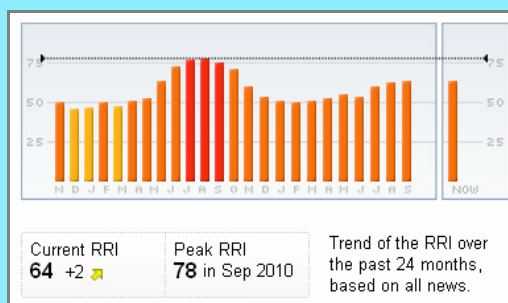
**Oil & Gas projects related to water scarcity:**

1. Queensland Curtis LNG Project (Australia)
2. Keystone XL (USA)
3. Tsimiroro Oil Field (Madagascar)
4. Via Verde Gas Pipeline (Puerto Rico)

**Oil & Gas companies related to water scarcity:**

1. Halliburton
2. Chevron
3. Royal Dutch Shell
4. Encana
5. Exxon

**RepRisk Index (RRI) for Oil & Gas Sector\***



\*RRI calibration: 0-24 = low risk exposure ; 25-49 = medium risk exposure ; 50-74 = high risk exposure; 75-100 = very high risk exposure  
 The RRI graph for the Oil & Gas Sector displayed covers the entire scope of RepRisk ESG issues, including Overuse and Wasting of Resources, local pollution and impacts on environment.

## METHODOLOGY

RepRisk special reports are compiled using information from the RepRisk database, which consists of criticism on companies' environmental, social and governance performance. The RepRisk database currently contains criticism on more than 20,000 private and publicly listed companies. RepRisk analysts monitor the issues related to environmental, social and governance risk across a broad stakeholder audience of NGOs, academics, media, politicians, regulators and communities. Once the negative news has been identified with advanced search algorithms and analyzed for its novelty, relevance and severity, risk analysts enter it into the database and link it to the companies in question. No article is entered twice unless it has been escalated to a more influential source, contains a significant development, or has not appeared for the past 6 weeks. This helps to ensure the balanced and objective rating and weighting of the negative news, and thus the company's quantitative measure of risk exposure, the RepRisk Index (RRI). The RRI measures the risk to a company's reputation, not its actual reputation in general.

RepRisk objectively monitors the level of criticism to which a company is exposed. All data is collected and processed through a strictly rule-based methodology. Controversial issues covered include breaches of national or international legislation, controversial products and services, environmental footprint and climate change, human rights and community relations, labor conditions and employee relations as well as corruption and money laundering. In particular, all principles of the UN Global Compact are addressed.

### About RepRisk

RepRisk is the leading provider of dynamic business intelligence on environmental social and governance risks. Our analysts focus on monitoring issues meaning that RepRisk's business intelligence allows you to identify and assess the environmental, social and governance issues, which may present financial, reputational, and ethical risks across an unlimited universe of companies and projects. It can be used by Boards of Companies, Chief Executive Officers, Chief Risk Officers, Chief Investment Officers, Heads of Legal and Directors of Marketing for strategic risk management. Tactically, it can be used by investment professionals, financial institutions, public policy communications teams, supply chain managers, and compliance managers to manage and mitigate risk in their daily operations. The RepRisk application includes a variety of features enabling clients to monitor risk trends over time, create customized watch lists, tailor alert services, and more. The RepRisk tool plays an integral role in financial risk management, enterprise reputation risk management and compliance with internal and international standards.

RepRisk covers all major business languages and its database currently includes over 20,000 companies, 4,500 projects, 3,500 NGOs and 3,000 governmental bodies. It is updated continuously and the number of entities is growing daily.

### Contact

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