Coal deepens the global water crisis

On this page

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Essential for all life, water is arguably our planet's most important natural resource. Yet every year, the coal industry's eight thousand power plants around the world use enough fresh water to meet the basic needs of one billion people. Water-hungry coal is worsening the global water crisis. As well as consuming water resources, coal plants and coal mines also pollute them. Greenpeace works to highlight coal's harmful effect global water supplies, and to stop new coal power plants from being built, especially in areas with high water stress.

Water, our overstretched but vital resource

Each passing year increases the strain on our planet's precious fresh water supplies. In some regions farmers struggle to irrigate fields, villagers must dig deeper wells to reach fresh groundwater, and shortages compel cities to restrict or even cut off water supplies. Climate change is expected to make droughts worse in some parts of the world.

Thirsty, dirty coal a global water drain

The world's 8,359 power plants use enough water to meet the basic needs of one billion people, Greenpeace's ground-breaking work shows. Instead of watering crops or being used for drinking, this water goes to cool power plants, or gets used for things like boiler make up or coal ash handling.

- Coal power plants use 84 percent of the water consumed by the coal industry (coal mining uses 16 percent). Most of this water is for cooling power plants.
- A 500 MW coal plant with once-through cooling can use enough water to empty an Olympic size swimming pool every three minutes.
- Even coal power plants with water-saving cooling technologies, such as air cooling or cooling with seawater, still use significant amounts of fresh water. Only about one fifth (19 percent) of power plants use seawater for cooling. Yet even these plants typically use up to one million cubic meters of fresh water each year (for a 500 MW plant) for other power plant processes.

Coal industry water grabs

Averaged around the world, mines, coal washeries and coal-fired power plants account for about seven percent of global water withdrawals. This number is higher, 11.2 percent, in watersheds with coal power plants.

Industry growth plans would increase water-coal conflict

The coal industry's plans to build 2,600 more coal plants would double its enormous water consumption. Even more outrageous, almost half (45 percent) of these plants are planned for the world's most water-stressed areas.

If built, they would push parts of the world deeper into severe water stress, and ramp up the risk of serious conflicts between water users.

- Conflict in Maharashtra, India shows why this must not happen. Competition for water between agriculture and power stations is high. Power plants have shut down due to lack of water. In a tragic injustice, many of the drought-affected state's farmers have been driven to suicide.

Dirty coal also pollutes water

The coal industry not only consumes water, it also pollutes it and damages watery ecosystems. Mining causes the worst water pollution from coal, but coal plants are also major culprits.

Water hungry coal power plants pollute water in many ways.

- Coal power plant operation creates vast volumes of toxic coal ash, stored in coal ash ponds. These have regularly leaked into water bodies or seeped into groundwater (see below).

- Power plants discharge coolant water into aquatic ecosystems. This warm water can damage plant life and kill or drive away fish.

- Coal plants release pollutants into the air that may cause acid rain. This can travel over wide areas, killing fish and plants.

Coal's poisonous legacy: ash, sludge and toxic ponds

Each year the coal industry produces vast amounts of power plant waste. Very little is recycled, especially in China, the US and India, the world's three largest coal consumers.

Most ends up in landfills, surface storage areas, or mines. Coal ash is supposed to be safely stored in disposal sites, to prevent toxic waste from contaminating local water resources. Yet ash dams regularly break, allowing harmful waste to leak into water resources.

- In the US, about 40 percent of coal waste landfills and 80 percent of coal waste surface impoundments lacked liners to stop leakage.

This coal power plant waste is laden with toxic heavy metals, such as arsenic, cadmium, lead and chromium. These toxins are linked to wide-ranging health risks, including cancer, organ damage, and cardiovascular and nervous system damage.

- The USA EPA found the average public health risk of metals from power plant waste disposal units could be up to 10,000 times higher than their allowable risk levels for cancer and other illnesses.

What is Greenpeace doing?

Greenpeace analyses the coal industry's harmful effect on water supplies, and communicates this to the world.

We fight to stop new power plants from being built, especially in areas with high water stress. We push to see plans for these dirty projects replaced with clean renewable energy, such as wind and solar PV, which use little or no water.

We also campaign to shut down coal plants, especially old plants that have operated for 40 years.

Some of our successes:

- In Inner Mongolia, we exposed the Chinese coal chemical industry's overuse of groundwater resources and its devastating effects on local farms and ecosystems.
- We documented the coal chemical industry's release of water pollution in waste ponds. Our campaign led this practice to be banned in China.
- In Kalimantan, Borneo we highlighted how mining operations contaminate water, forcing some villager to buy drinking water. Our campaign gave these people a voice to protest this fundamental injustice.

What can you do?

- Find out what Greenpeace is doing about coal-water conflicts where you live.
- Explore ways to power up your life with renewable energy.
- If you have investments, make sure they are coal and fossil fuel free.
- Call on your government to stop providing subsidies to fossil fuels.