

# The World's Most Polluted Places

The List

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## Linfen, China



Smog covers the city center of Linfen.

REINHARD KRAUSE / REUTERS

**Number of people potentially affected:** 3,000,000

**Type of pollutant:** Coal and particulates

**Source of pollution:** Automobile and industrial emissions

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This soot-blackened city in China's inland Shanxi province makes Dickensian London look as pristine as a nature park. Shanxi is the heart of China's coal belt, and the hills around Linfen are dotted with mines, legal and illegal, and the air is filled with burning coal. Don't bother hanging your laundry — it'll turn black before it dries. China's State Environmental Protection Agency says that Linfen has the worst air in the country, which is saying something, considering that the World Bank has reported that 16 of the 20 most polluted cities in the world are Chinese. One Linfen native summed up the city's plight to a TIME reporter last year: "This place of ours is no good."

— by *Bryan Walsh*

[Next: Tianying, China >>](#)

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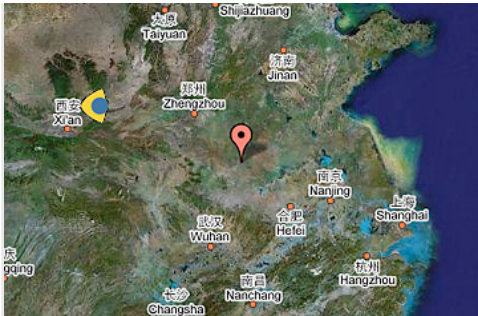
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## Tianying, China



**Correction Appended: Sept. 13, 2007**

**Number of people potentially affected:** 140,000

**Type of pollutant:** Lead and other heavy metals

**Source of pollution:** Mining and processing

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An industrial city — though China doesn't really have any other kind — in the country's northeastern rust belt, Tianying accounts for over half of China's lead production. Thanks to poor technology and worse regulation, much of that toxic metal ends up in Tianying's soil and water, and then in the bloodstream of its children, where it can cause lowered IQ. Wheat has been found to contain lead levels up to 24 times Chinese standards, which are even more stringent than U.S. restrictions on lead. "China has a commitment to environmental protection, but it also has a commitment to industry," says Fuller. "It's a constant push that's mostly won by industry."

— by *Bryan Walsh*

*Due to incorrect information from The Blacksmith Institute, an earlier version of this story mistakenly referred to the Chinese city of Tianjin. The correct city is Tianying.*

**Next: Sukinda, India >>**

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## Sukinda, India



Women draw water from a well. Groundwater in Sukinda is believed to be contaminated with chromium.

CHANDRA BHUSHAN / CENTRE FOR SCIENCE AND ENVIRONMENT

**Number of people potentially affected:** 2,600,000

**Type of pollutant:** Hexavalent chromium and other metals

**Source of pollution:** Chromite mines and processing

If you watched *Erin Brockovich*, then you know what hexavalent chromium is: a nasty heavy metal used for stainless steel production and leather tanning that is carcinogenic if inhaled or ingested. In Sukinda, which contains one of the largest open cast chromite ore mines in the world, 60% of the drinking water contains hexavalent chromium at levels more than double international standards. An Indian health group estimated that 84.75% of deaths in the mining areas — where regulations are nonexistent — are due to chromite-related diseases. There has been virtually no attempt to clean up the contamination.

— by *Bryan Walsh*

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## Vapi, India



Greenpeace activists collecting samples of effluents being released into the Damanganga river from the Vapi Industrial area.

AMIT SHANKER

**Number of people potentially affected:** 71,000

**Type of pollutant:** Chemicals and heavy metals

**Source of pollution:** Industrial estates

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If India's environment is on the whole healthier than its giant neighbor China's, that's because India is developing much more slowly. But that's changing, starting in towns like Vapi, which sits at the southern end of a 400-km-long belt of industrial estates. For the citizens of Vapi, the cost of growth has been severe: levels of mercury in the city's groundwater are reportedly 96 times higher than WHO safety levels, and heavy metals are present in the air and the local produce. "It's just a disaster," says Fuller.

— by *Bryan Walsh*

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From lead in the soil to toxins in the water and radioactive fallout in the air, The Blacksmith Institute has created a list of the world's worst ecological disaster areas

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## La Oroya, Peru



Pollution from the mining and processing operations of Doe Run Peru has led to dangerously high concentrations of lead in children's blood in La Oroya.

MATHEW BURPEE

**Number of people potentially affected:** 35,000  
**Type of pollutant:** Lead, copper, zinc and sulfur dioxide  
**Source of pollution:** Heavy metal mining and processing

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Lead is the contaminant that shows up most frequently on Blacksmith's list because the toll it takes on children can be so devastating. In La Oroya, a mining town in the Peruvian Andes, 99% of children have blood levels that exceed acceptable limits, thanks to an American-owned smelter that has been polluting the city since 1922. The average lead level, according to a 1999 survey, was triple the WHO limit. Even after active emissions from the smelter are reduced, the expended lead will remain in La Oroya's soil for centuries — and there's currently no plan to clean it up.

— by *Bryan Walsh*

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## Dzerzhinsk, Russia



The Kaprolaktam Plant of the Sibur-Neftekhim joint stock company in Dzerzhinsk, Russia.

VLADIMIR SMIRNOV / ITAR-TASS / LANDOV

**Number of people potentially affected:** 300,000

**Type of pollutant:** Chemicals and toxic byproducts, including sarin and VX gas

**Source of pollution:** Cold War-era chemical weapons manufacturing

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The legacy of Cold War weapons programs has left environmental blackspots throughout the former Soviet Union, but Dzerzhinsk is by far the worst. The city's own environmental agency estimates that almost 300,000 tons of chemical waste — including some of the most dangerous neurotoxins known to man — were improperly dumped in Dzerzhinsk between 1930 and 1998. Parts of the city's water are infected with dioxins and phenol at levels that are reportedly 17 million times the safe limit. The Guinness Book of World Records named Dzerzhinsk the most chemically polluted city on Earth, and in 2003 its death rate exceeded its birth rate by 260%.

— by *Bryan Walsh*

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## Norilsk, Russia



The Nadezhda nickel smelter pumps smoke over a pool of industrial water near Norilsk.

SERGEY PONOMAREV / AP

**Number of people potentially affected:** 134,000

**Type of pollutant:** Air pollution — particulates, sulfur dioxide, heavy metals, phenols

**Source of pollution:** Major nickel and metal mining and processing

Norilsk was founded in 1935 as a Siberian slave labor camp, and life there has pretty much gone downhill since. Home to the world's largest heavy metal smelting complex, more than 4 million tons of cadmium, copper, lead, nickel, arsenic, selenium and zinc are released into the air every year. Air samples exceed the maximum allowance for both copper and nickel, and mortality from respiratory diseases is much higher than in Russia as a whole. "Within 30 miles (48 km) of the nickel smelter there's not a single living tree," says Fuller. "It's just a wasteland."

— *by Bryan Walsh*

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## Chernobyl, Ukraine



An abandoned house in the exclusion zone around the Chernobyl nuclear reactor.

VIKTOR DRACHEV / AFP / GETTY

**Number of people potentially affected:** Initially estimated at 5.5 million, currently disputed

**Type of pollutant:** Radiation

**Source of pollution:** Nuclear meltdown

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When Chernobyl melted down on Apr. 26, 1986, the ruined plant released 100 times more radiation into the air than the fallout from the nuclear bombs at Hiroshima and Nagasaki. Today the 19-mi (30-km) exclusion zone around the plant remains uninhabitable, and between 1992 and 2002 more than 4,000 cases of thyroid cancer cases were diagnosed among Russian, Ukrainian and Belarusian children living in the fallout zone. "It's the largest industrial accident in the world," says Fuller. "It'll be contaminated for tens of thousands of years." Fortunately, work is being done to prevent further radiation spill from the ruined sarcophagus of the nuclear plant.

— *by Bryan Walsh*

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## Sumgayit, Azerbaijan



The industrial zone in Sumgayit, Azerbaijan.

ANDY JOHNSTONE / PANOS

**Number of people potentially affected:** 275,000  
**Type of pollutant:** Organic chemicals, oil and heavy metals  
**Source of pollution:** Petrochemical and industrial complexes

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Another legacy of the Soviet Union's utter disregard for the environment — Stalin once boasted that he could correct nature's mistakes — Sumgayit's many factories, while they were operational, released as much as 120,000 tons of harmful emissions, including mercury, into the air every year. Most of the factories have been shut down, but the pollutants remain — and no one is stepping up to take responsibility for them. "It's a huge, abandoned industrial wasteland," says Fuller.

— *by Bryan Walsh*

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### Kabwe, Zambia



Young men look for metal at the site of an abandoned lead mine in Kabwe, Zambia.

BLACKSMITH INSTITUTE

**Number of people potentially affected:** 255,000

**Type of pollutant:** Lead and cadmium

**Source of pollution:** Lead mining and processing

When rich deposits of lead were discovered near Kabwe in 1902, Zambia was a British colony called Northern Rhodesia, and little concern was given for the impact that the toxic metal might have on native Zambians. Sadly, there's been almost no improvement in the decades since, and though the mines and smelter are no longer operating, lead levels in Kabwe are astronomical. On average, lead concentrations in children are five to 10 times the permissible U.S. Environmental Protection Agency levels, and can even be high enough to kill. "We did blood tests on some of these kids, and they literally broke our machines," says Fuller. "There is a long, nasty history here." But there's also a bit of hope: the World Bank has recently allocated \$40 million for a clean-up project.

— *by Bryan Walsh*

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