

Green Cities: An A-to-Z Guide

Norilsk, Russia

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With the discovery of massive deposits of nickel in the 1920s, slave labor camps to mine these reserves soon followed, and the city of Norilsk was born. Officially founded in 1935 as the Norilsk Combine, for decades the city was a key island in Stalin's industrial gulag archipelago. The People's Commissariat for Internal Affairs (or NKVD) was given responsibility for construction of Norilsk as a test of its ability to manage large projects that relied on prison labor. Today, with a population of approximately 135,000 people, Norilsk, which is located on the Taimyr Peninsula, is the world's second-largest city (after Murmansk) above the Arctic Circle.

Mining remains the primary industrial activity and source of employment in Norilsk, as the world's largest nickel deposits, almost all of Russia's platinum group metals (platinum, palladium, and rhodium), and half of the country's copper can be found within the city's environs. These reserves are exclusively controlled by the multinational firm Norilsk Nickel. Because of the decades of heavy metal mining and processing that took place at its outdated smelting plants, Norilsk has the dubious distinction of regularly being recognized as one of the world's most polluted cities.

At its peak in 1951, Norillag, or the Norilsk Corrective Labor Camp, had 72,500 prisoners. Norillag was tasked not only with mining the deposits but also with all labor-intensive spheres of economic activity: building bridges, roads, and settlements, and even fishing and hunting. The city these laborers built is in typical Soviet geometric style, with the geometric structure of long avenues punctuated by large symbolic squares. The harsh weather (gale-force winds, heavy snowfall, and permafrost) necessitated some architectural ingenuity, including driving steel pilings deep into the soil to ensure the structural integrity of buildings. Residential blocks also included closed courtyards to avoid windblown snowdrifts.

The Taimyr Peninsula remains the home of the Nenets, Enets, Dolgan, and Nganasan peoples, some of whom continue to herd reindeer along the vast stretches of tundra. However, forced Soviet-era collectivization policies, coupled with the lure of high wages

in the mines and smelting factories, led many to abandon their nomadic lifestyles, as in many other regions of the Soviet Union. Nevertheless the region around Norilsk, at least on [p. 349 ↓] paper, enjoyed special autonomous status as the Dolgano-Nenetskii (Taimyrskii) Autonomous Okrug from 1930 to 2007 because of the large percentage of “native” groups (approximately 20 percent of the total population by the 21st century). However, the administrative center was Dudinka, the port that serves Norilsk, whereas the city of Norilsk itself paid taxes to Krasnoyarskii Krai, not the Okrug, rendering it relatively powerless. In 2007, the Okrug was formally dissolved and all administrative and territorial duties were handed over to the Krai.

For much of the 20th century, Norilsk was only accessible by traveling up the Yenisei River. Residents speak of traveling to and from “continent,” and many still view the city as a temporary location, where one makes money and then moves on. Nevertheless, some residents have developed a strong sense of place. Despite a program to resettle residents of the Russian north, many have resisted leaving, even those who no longer work. This poses problems for the Russian government, as the cost of providing services for a resident of the polar region is four times higher than the average in Russia.

Norilsk Nickel and Pollution

Once a state-owned conglomerate, Norilsk Nickel was privatized under the controversial loan-for-shares auction program rolled out under the Yeltsin administration. This meant the de facto privatization of the Norilsk “factory-state,” in which workers, because of the high cost of relocation, had no alternative for themselves in Norilsk. Many ended up suffering from a “Stockholm Syndrome” of loyalty to the factory.

Privatization of Norilsk Nickel turned Vladimir Potanin and flamboyant business partner Mikhail Prokhorov into Russian oligarchs. The latter, no longer associated with the company, used some of his immense wealth to create the Prokhorov Foundation, which still supports social and environmental causes in Norilsk, and some to buy the NBA basketball team the New Jersey Nets. Fully privatized by 1997, Norilsk Nickel has production facilities in six countries, but the bulk of its production still comes from its Norilsk mines and, to a lesser degree, from mines in the Kola Peninsula. Although

headquartered in Moscow, Norilsk Nickel has a hand in virtually all facets of the city's operations.

The company's smelting operations are the largest source of air pollution in Russia and the Arctic as a whole. Norilsk Nickel's three massive smelters annually release millions of tons of pollutants into the air, primarily in the form of sulfur dioxide, which turns into acid rain. A 1992 assessment by the Russian government estimated that acid rain had destroyed 180,000 hectares (ha) of forests and compromised an additional 382,000 ha. The Soviet and Russian governments, however, have long been accused of underreporting emissions levels. Getting access to the region has been difficult, in part because the city has been largely closed to foreigners since 2001, ostensibly because of a nearby missile silo facility. Analysis of heavy metal pollution, for example, of the soils indicates that nickel and copper emission have been significantly underestimated.

A. S. Yakovlev et al., found in 2009, “irreversible, catastrophic impacts” within four kilometers of Norilsk, with a landscape characterized by high concentrations of heavy metals, absence of trees, and permanent soil damage. Significant soil and water pollution were measured 25 kilometers away. Greenpeace-Russia has declared a 30-kilometer radius around the city a “dead zone,” claiming acid rain has affected an area the size of Germany. National Aeronautics and Space Administration (NASA) space images clearly show the geographic scope of the smelter's effect, largely visible in the form of lack of vegetation. **[p. 350 ↓]** According to NASA, heavy metal pollution of the soils near Norilsk is so severe that it has become economically feasible to extract platinum and palladium from them.

Life expectancy for factory workers has been estimated as 45 years of age—10 years below the national average. Norilsk Nickel has taken some measures to reduce the toxicity of the air emissions and broadly improve health conditions. However, a 2007 report indicated that air pollution is responsible for 37 percent and 22 percent of children and adult morbidity, respectively.

Prospects

In many respects, Norilsk is emblematic of the path-dependent human settlement patterns that have their roots in Soviet Era development policy that continue to shape much of present-day Russia. Norilsk is an integral component of Russia's resource geography, a node in the "petrostate" economy. Yet ameliorating the ongoing toll on the environment and the health of local residents will likely necessitate a complete transformation of Norilsk's embedded mining infrastructure, including closing the most polluting plants. O. Vendina finds hope that a network of economically strong cities could diversify both political power and economic centrality away from Moscow and St. Petersburg, knitting together Russia's regions. This horizontality of Russian space would in turn catalyze the transformation of polluted cities such as Norilsk and its nearby regions.

Ironically, the greatest hope for a "greener" Norilsk may lie outside Russia. Although the Arctic industrial enclave and former gulag feels remote in the geographic imaginary, commodities that originate from Norilsk's mines and smelters can be found, in some version, in virtually every home, driveway, and office on the planet. Nickel is used to make stainless steel, rechargeable batteries, electric guitar strings, magnets, and coins. Platinum is used for catalytic converters, jewelry, anticancer drugs, spark plugs, and more. In this manner, we are all connected to Norilsk.

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See Also:

- [Carbon Footprint](#)
- [Environmental Justice](#)
- [La Oroya, Peru](#)
- [Waste Disposal.](#)

Further Readings

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