The Soviet Union mined uranium across its empire for decades, leaving a legacy of environmental damage, social breakdown and widespread health issues. In the first of a two-part investigation, we reveal how the devastating effects are still being felt in Germany, Romania and the Czech Republic.

“We live here, with radon [radioactive gas] across the road and with chalk dust from down in the valley – God damn it – it will kill us all,” says 53-year-old Vasile Mocanu, a former miner.

He is describing how his life has been trapped between two sources of pollution – a uranium mine and a chalk mine. Baita Plai, an ex-Communist workers’ colony built by the Soviets in the 1950s, lies on the edge of the Transylvanian countryside, 500km north-west of Bucharest.

The Soviets exploited uranium at this site – one of the richest reserves in the world – as reparations after World War II, during which the Romanians fought against the USSR. The uranium was first extracted from two surface pits, before the mine moved underground.

“For us it was dangerous work,” says another former miner, 74-year-old Florian Covaci. “We travelled an hour to the pit on a bus, then by train underground for 8 km. We were working wet to the skin to make holes in the rock with water. It was like in a labour camp.”

Beginning in 2000, the mine slowly declined. The workers left, either voluntarily or were pensioned off. Today most of the apartments in the four blocks in Baita Plai are empty. Just 100 people live there now, but only four are former miners. Nobody wants to live near to slag heaps and noxious mines.

In this area, 4.6 million litres of radioactive waste has been deposited. Romania’s track record of cleaning up its uranium legacy is a history of decay, abandonment and ignorance. (There will be more about the multiple failures of public authorities to deal with the issues in the second part of this investigation.)

‘Most died younger than 50’

One of the major threats to human health – the risk of cancer from radiation – has not been analysed by Romanian officials so the casualties of cancer due to uranium mining and its legacy in the country are unknown.

Vasile Mocanu, who likes to be known as Doru, worked in the uranium mine in Baita Plai for many years, then stayed on as a security guard for a private firm that supervises the mine and deposits of radioactive material.

Doru says his body has become used to radioactivity and he hopes “with all his soul” that he will reach a pensionable age, because many of his former colleagues died early.

“Many died before they reached 50,” says Doru. “A former colleague recently died at 57.

These diseases put many young people in the ground."
Experts agree that radiation causes cancer, and Romania's ministry of health admits that the main route of radioactive exposure for uranium miners is through inhaling radon, a radioactive gas that has been classified by International Agency for Research on Cancer as carcinogenic to humans.
Radon is second only to smoking as a cause of lung cancer, and recent studies have investigated a possible relationship between radon and leukaemia.
A study carried out in Baita Plai by researchers from the University of Babes-Bolyai, Cluj-Napoca and the University of Cantabria in Santander argued that between 1,000 and 3,000 deaths each year in Romania could be caused by radon.
Although those who worked in the mines were at greatest risk, locals in Baita Plai who never set foot in the tunnels are still exposed to radon even while they are in their homes because, as the local mayor explains, Romania allowed materials from uranium mines to be used for buildings in Baita Plai.
During the 1960s and 1970s, stones from the mine dumps were used for building foundations, walls, road kerbs and even animal shelters. The waste was also used to build roads in Slovakia and the Czech Republic.
However, miners elsewhere in Romania have other theories to explain the early deaths of former miners.
'Those who leave, die'
The Soviet-built former workers' colony at Ciudanovita in south-west Romania once boasted its own football team – and the stadium is still visible near the entrance to the mine, which is closed with concrete.
Now, the population numbers about 300. The school, once filled with children, has only a handful of pupils. Former miners come to the run-down post office to pick up their pensions because the town does not have any ATMs.
Behind a housing block, a woman is sleeping next to some crates of beer. A man on a balcony talks to us about radiation. He believes poison from the mine is a fairytale.
"I worked in the mine and I have 11 kids. If there had been radiation, I wouldn't have been making so many," he says.
There is a legend that people who leave the zone become sick and die, while those that stay remain healthy. Two old men, also former miners, drinking beer on a bench say those who left the town died from lung disease. Others, who could not accustom themselves to a life in another place, returned to the town.
Deep contamination

In the Czech Republic, similar to Romania, there is no national strategy for monitoring the health of former miners or locals.

“Hundreds of miners died as a consequence of having worked in the uranium mines and the impact on the landscape is among the worst environmental disasters in the Czech Republic,” says a spokesperson for campaign group Association for the Preservation of the Environment (Calla).

In Straz pod Ralskem, 100km north of Prague, uranium was extracted between 1967 and 1993 using a process called in-situ leaching (ISL). This involved digging more than 7,000 wells and pumping more than four million tonnes of sulphuric and nitric acid and ammonium into the mine through metal tubes. Uranium was then extracted in solution.

But these chemicals leaked from the production area into the nearby river for more than a decade, contaminating millions of litres of underground water close to drinking-water reservoirs.

Meanwhile, dozens of hectares of tailings ponds – pools of water designed to hold waste material from the mines – have been left freely accessible to the public. Only a small sign hidden behind some trees warns visitors this is an area exposed to radiation.

The estimated cost for repairing the environmental damage – a process known as remediation – is almost €2 billion, with an expected completion date of 2037. In many cases the European Union covers up to 85 percent of the costs of remediation.

A local official of Diamo – the state-owned firm responsible for the mines – said that up to September 2015 almost €1 billion had been invested in the region for remediation and liquidation of the former treatment plant.

“All the scrap is being verified in terms of radioactive contamination,” explained the official.

Josef Jadrny, deputy governor of the Regional Authority of Liberec, said contaminated material was being disposed of in tailings ponds at a rate of 100,000 litres a day.

“The contamination in this region is reaching as far as 300m in depth,” he said.

Nature returns

Some 66 sites have been exploited for uranium mining in the Czech Republic, leaving behind 6.33 sq km of tailings ponds. Except Straz pod Ralskem, the only mining production continues at Dolni Rozinka, south-east of Prague, which produces 224 tonnes of uranium per year.

Public trains pass daily beneath the Dolni Rozinka plant’s conveyor belts. Beyond a layer of trees many unprotected tailings ponds lie hidden. The plant is due to close in 2017, and nature has already started to take back the land.

Agriculture is taking place just metres from sites that were used for decades to dump

contaminated waste including concrete, scrap, oil and tyres. A flock of wild ducks is nesting in a tailings pond connected to pipes from which yellow chemicals are pumped.
But the Czech authorities now want to build the largest deposit of radioactive waste just a few kilometres away.
Diamo also intends to reopen an old mine in Brzkov about 50km west. The town's mine, which was closed in 2004, boasts good quality uranium.
But Brzkov mayor Ales Boril is critical of the move. He describes Dolni Rozinka as a "sad place" and wants to avoid sharing its fate.
"I am interested in the future of this place and we want to protect the environment, not destroy it," he says.
He accuses Diamo of putting pressure on politicians to support their plans.
Josef Jadrny, the deputy governor of the Regional Authority of Liberec, says politicians argue that reopening the mines will provide jobs, but they pay no heed to the environment.
"It is a political reason why this company survives, not the interests of the people. It's a Russian system: mine, mine and mine with no care about the environment and health."
Diamo failed to put forward any senior official to reply to these allegations, despite repeated attempts to arrange an interview.
Waste dumps to sand traps
Eastern Germany is often viewed as the best example of remediation following intensive uranium mining. Land from the vast network of Soviet-era mines has been transformed into a spa, golf-course and horticultural exhibition.
The total amount of uranium mined in East Germany is only surpassed by production in the USSR, the US and Canada. Wismut, a Communist-era institution, ran mines across the Erzebirge mountains and the Vogtland mountains.
After German reunification, uranium production was stopped and Wismut passed from Soviet control into the hands of the German state. In the 1990s, Wismut changed its role from a mining company to a business dealing with decommissioning, cleaning up, and rehabilitating uranium mines and processing sites.
However, the mining legacy included 48 mine dumps, 311 billion litres of waste rock, 160 billion litres of radioactive sludge, known as tailings, and 15 sq km of waste dumps. Much of this was in or around densely populated areas.
The expected cost for cleaning up the mines was estimated at €7.1 billion, of which around €6 billion has already been spent – compared with €20 million so far spent on rehabilitation in Romania.
The town of Schlema, once the site of a dump, has been restored as a spa town with a golf

course over six sq km of waste dump. Wismut prides itself on having the biggest mining rehabilitation project in the world.

However, 3,700 cases of lung cancer among miners in eastern Germnay have been recognised as “occupationally caused” since 1991. A report by Central German Broadcasting (MDR) in 2012 claimed that 100 workers had contracted cancer of the larynx and 2,800 workers suffered from pneumoconiosis, a lung disease often caused by exposure to dust in mines.

This indicates that a connection can be made between uranium mining and occupational diseases – a link that has not been explored properly in the Czech Republic, Slovakia or Romania.

Nevertheless, there are still issues, says uranium expert Peter Diehl.

“In spite of all the planning and expertise applied, there have occurred odd failures, such as slumping slope covers and excessive radon releases from drying waste pile covers,” says Diehl, referring to inadequate attempts to cover radioactive waste.

“In the waste rock pile covers of Schlema, there has been rising radon emissions from Wismut’s reclaimed waste rock piles.”

He said these radon emissions had led to public doses above 1 millisievert a year – a measure of the health effect of low levels of ionising radiation on the human body.

The International Commission on Radiological Protection recommends that public doses should not exceed 1 millisievert a year, not including medical and occupational exposures.

Critics have suggested that Wismut is failing to act on this because the 1 millisievert limit is only a recommendation and will not become law until an EU directive is enacted in national legislation in 2018.

source: euobserver.com