



## Nickel Giant's Greenest Underground Adventure

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It only takes four minutes on a bumpy cage ride to travel the length of three CN Towers - not up but straight down - and land directly in the heat and the heart of one of Inco Ltd.'s oldest mines.

It's dirty, dank and so dark you can't see a hand in front of your face without a light when you step onto the 1,400-metre level of the Creighton mine, where the veteran nickel giant has been digging, drilling and scooping up base metals for over a century. A slight breeze from a ventilation door makes the typically suffocating humidity at least tolerable.



So when some lights are switched on and sight is restored, the last thing you'd expect to see in this otherwise inhospitable environment buried between the rock walls and gravel is something green—or anything growing at all.

But in fact, you can't see the nickel for the trees down here at Inco's underground nursery, which has been a big but fairly quiet part of the re-greening of the well-mined and logged Sudbury basin for the last 20 years.

Inco grows 50,000 subterranean seedlings a season of red pine and jack pine more than a kilometre down the 2.3-kilometre mine shaft that is set to plunge further in the next decade to reach more nickel, copper and platinum-group metals. The tree nursery is located at a higher level that has already been depleted of its resources and is no longer in use yet is still easily accessible via mine hoist.

After three months of germination, the 5-inch pellets and seedlings are then brought up to the surface and planted on and around Inco property to fulfill its obligation to reclaim the barren land after years of wear and tear from mining, smelting and refining. Another 200,000 seedlings are also grown annually in the greenhouse operated year-round at Copper Cliff.

"The idea is to put things back to the way they were, back to their natural state," says Dave Taylor, superintendent of Inco's natural environment group in Sudbury.



"We'd like to try and restore the stressed land. There's a lot of it around Sudbury as anyone can see," he notes.

Growing underground seems completely counter to the concept of, well, garden-variety horticulture that normally occurs out in the open air under just the skies and some much-needed rainfall. But it turns out that a steamy mine is a perfect environment for tree growing. For starters there's a constant humidity and geothermal heat of 25C year-round.

"The underground nursery works because there is an ambient rock temperature, it's warm and you don't have to heat a greenhouse in cold weather in Sudbury. And it makes good sense because the facility is available so there's no added cost at Creighton," explains Taylor.

Fertilizer, electricity and water are pumped in at minimal cost compared to the expense of heating a regular greenhouse through the sub-zero winters, he says. The underground forest of baby trees is Y-shaped and fairly narrow at 10 feet wide and 600 feet long with fertilizer and water storage tanks at the wide end. It needs 2,000 litres of both water and fertilizer per day, so the tanks are on timers.

To get things going it requires 30 1,000-watt light bulbs to give it the artificial effect of sunlight, which stay on 24 hours a day the first week, then 18 on and 6 off for three weeks and then 12 on and off—just like outdoors—the rest of the time.

"We turn the lights on in the evening to save money. The plants don't know the difference between night and day down there," jokes Taylor.

"We start planting in late January and by late May, after the frost, we're bringing them up to the surface," says Mike Peters, Inco's grounds supervisor in Sudbury, who is down there a few times a week during the growing season to ensure everything is running ship-shape.

He and a skeleton staff of four others work on the Creighton mine's cage schedule, so they go down at 7 a.m. with the rest of the miners and the first chance they have to come back up is noon.

"I think I've been going underground longer than most of the miners. I've been doing reclamation work here for 30 years," he says.





"We plant most of them on our property and then we donate them to the City (of Sudbury), Boy Scouts and other charities," he says, adding nearby students in Grades 5 to 8 also help plant trees in the spring.

Contractors do most of the planting of the 5-inch seedlings, which can grow to a height of 80 feet. They continue planting today while the soil is still relatively warm along with hydro seeding, in which they pump fertilizer and seeds from tanker trucks at roadside. They also just finished 300 acres of aerial seeding and have done about 3,000 acres in total in the Sudbury area. Curious students pretty much planted the initial seed for the Inco nursery.

"We started the underground tree operation in 1986," explains Peters. "It all started out as a research study in the late '70s when they tried growing vegetables as a pilot project prompted by Laurentian University students as a way to find alternatives in an energy crisis."

But it was determined the mine wasn't sustainable for crops like carrots and cucumbers so they scratched that plan and eventually tried out trees, particularly since they were taking a lot of heat at the time for being big-time polluters who cared not about destroying the land.

"It's an ongoing story and Inco has a commitment to it," says Peters, adding other U.S. mining companies have recently approached Inco for their expertise on starting an underground nursery.

Recently, a Saskatoon company used an abandoned zinc mine in Flin Flon, Man., to grow medicinal marijuana for the federal government, but with rather unsatisfactory results.

"We get that joke a lot too (about trying out that crop) but we say, no, we can't do that," laughs Peters.

Earlier this year, Inco handed out 10,000 of their underground seedlings to hockey fans with a "Grow Leafs Grow" logo at the Air Canada Centre at the Toronto company's annual Sudbury Saturday Night theme bash.

For the most part Inco has been running the underground nursery fairly quietly for the last 20 years even though it's a good news story from just about anyone's perspective.





"It's a good thing to do. I'm always glad when they find ways to keep communities supported," says Joan Kuyek, national co-ordinator for Ottawa-based Mining Watch.

"Reclaiming the area is very important. They're getting a lot out of that community so it's only right that they give something back," she says.

Inco uses red and jack pine because they grow faster than white pine and do well in poorer soils such as the sand and gravel and clay native to the forests in the Sudbury area, Peters says.

The pellets are taken underground in January on sheets, 84 to a tray. All 50,000 are piled onto two rail cars that are pushed along the narrow nursery for planting by electric locomotive. From there they use a vacuum seeder in which a bar drops the seeds into each pellet.

They generally double-seed to ensure success.

Both the pellets and the seeds are just 2 cents each. They buy them from New Brunswick company Jiffy Products Ltd.

Another cost saver is that instead of renting the vacuum seeder each year as they always have, they are in the process of purchasing one for \$10,000 this year.

As a result of being pushed by activist groups and government, which now legally requires mining companies to have closure plans when their mines wind down, things look a lot different these days in the Sudbury basin compared to just 20 or 30 years ago.

"Sudbury was such an eyesore (before this) that it was used to fight mine expansion elsewhere, in other parts of the world. They took pictures of the blackened landscape," Kuyek noted.

But as Taylor says: "The difference has been dramatic, especially for people who have moved away and come back. We're trying to put things back the best we can to nature."

"It's nice to look out over your life over 30 years and see what you've done," adds Peters, pointing to the evergreens surrounding him in the forest. "Especially in the areas where I've planted them. Everyone from my dad to my kids have planted some of these," he says, smiling.