Landfills: A look at the climate crisis in trash

LE BOURGET: While efforts to avert disastrous climate change zoom in on cars, industry and power plants belching harmful gases into the air, a potent source of global warming is stealthily stewing underground: rotting trash. Landfills packed with decomposing dinner leftovers and grass clippings are among the world's top sources of methane-one of the most powerful heat-trapping gases contributing to the Earth's warming.

The worst dumping grounds "are places where climate change is being caused on a very great scale," David Newman, who heads the International Solid Waste Association, said on the sidelines of the UN conference in Paris where a climate rescue pact is edging towards possible agreement.

Curbing emissions, mainly from burning oil, coal and gas, is a key thrust of the 195-nation talks billed as the last chance to avert worst-case-scenario global warming. But scientists estimate that dumps produce at least 10 percent of man-made methane, making it the world's third biggest source of the gas after energy production and agriculture.

Garbage leaks

Methane has a much shorter lifespan in the atmosphere than carbon dioxide (CO_2) — the most abundant greenhouse gas-but traps about 20 times more per unit of the heat radiated from Earth's surface. Rotting garbage in landfills emits the gas because it is buried and therefore decomposes without oxygen-anaerobically. A backyard compost pile exposed to air would generally not produce large quantities of the gas.

Experts warn the methane is seeping out of landfills around the world despite efforts to boost recycling and cut waste. In the European Union, more than 100 million tons of trash are dumped every year, though the 28-nation bloc has issued a directive to limit the volumes sent to landfills by 2025.

The United States, China, India and many other nations send millions more tons of their waste to the dump annually for burial. Veerabhadran Ramanathan, a climate science expert at University of California, San Diego, said tackling methane is key to limiting global warming to the UN ceiling of two degrees Celsius (3.6 degrees Fahrenheit) over pre-Industrial Revolution levels. "You can't do it with (cutting) CO_2 alone, we have lost that luxury," he said. "It's too late-you need to bring in these other pollutants."

'Uncontrolled methane'

How to deal with landfill gas-up to 60 percent methane-has long been a problem for dump operators. Gas has been known to escape from dumps, leak into homes and explode, notably in Britain and Denmark. Many landfills now collect the gas, burn it off or use it to make electricity. For example, gas from Shanghai's Laogang landfill, one of China's largest, will provide enough electricity per year for 100,000 families, said Gary Crawford, a vice president of international affairs at water, waste and energy giant Veolia. "The project contributes to significant greenhouse gas emission reductions, over 700,000 tonnes of CO_2 equivalent in 2014," he said. Those emissions are on par with the pollution emitted by 147,300 cars in a year.

However, environmentalists have been critical of using landfill gas as an energy source. American advocacy group Sierra Club issued a report in 2010 saying burning methane results in a net increase in pollution. Sierra Club said it is better to keep organic waste out of landfills "so that uncontrolled methane is not generated in the first instance". The benefits of generating electricity in this way, it said, are outweighed by methane escaping into the air. Ramanathan stressed that methane emissions can be largely averted. "CO_2 is an inescapable consequence of burning fossil fuels," he said, but for methane, "there are ways to avoid" it. —AFP

EL SALTO: View of the Santiago river in El Salto, Jalisco State, Mexico. Some 400 factories settled on the banks of the Santiago river have poured industrial waste into it for four decades, making it a deposit of 1.090 toxic substances, metals, chemicals, etc., documented the Mexican Institute of Water Technology. —AFP

Pollution whips up hazardous foam clouds in Mexican river

EL SALTO: Dead fish floating in fetid waters, swarms of mosquitoes and clouds of foam whipped up by pollution: Activists say Mexico's Santiago River, among the dirtiest in Latin America, is making people sick.

The river runs from Lake Chapala in the western state of Jalisco to the Pacific Ocean, a 562-kilometer waterway that was once known for magnificent waterfalls and picturesque sceneries in a deep canyon. But 400 factories set up shop in an industrial area along the river, dumping waste for decades, including more than 1,000 toxic substances, metals, chemicals and other pollutants, according to the governmental Mexican Water Technology Institute. And that's not all.

The river has also had to swallow sewage from some 10 municipalities surrounding Guadalajara, Mexico's second biggest city. The residents of two towns, Juanacatlan and El Salto, have borne the brunt of the problem. A waterfall between the communities churns sulfate pollutants, acting like a giant washing machine that produces thick foam, parts of which often floats into the air, reaching a bridge above used by locals.

Dead child

"Any child here knows that this is anything but water," said Enrique Enciso Rivera, a member of Un Salto de Vida, a non-governmental organization founded in 2006 by local residents to combat the pollution.

In El Salto, a town of 20,000 people, the mosquito problem got so big that when people would chat outside their homes, "we couldn't talk anymore because there were so many ... and they'd fly into your mouth," Enciso told AFP. People can no longer take the stench from the river, which causes headaches, nausea and eye irritation. In 2008, an eight-year-old boy died 19 days after falling into a canal and swallowing arsenic, Enciso said.

"Two years ago, thousands of dead fish appeared from one day to the next," said Juanacatlan Mayor Refugio Velazquez Ballina, whose office is just a few meters (yards) from the river. "There have been a lot of cases of cancer, kidney failures and skin problems" linked to the river, he said.

Carlos Olguin, a 54-year-old man who runs a taco stand, recalled his daughter's death from cancer at the age of 28 four years ago. Shortly before she died, a doctor at the public hospital told him that he had "many cases of people from El Salto who were getting cancer." While locals no longer swim or fish in the river, they are still exposed to it because the ground water has been contaminated and people use wells in their homes for their kitchens and bathrooms.

Ineffective treatment plant

Relatives of victims, civil organizations and municipal officials say the Jalisco health department is covering up the effects of the pollution. A health department spokesman told AFP there is no evidence linking the pollution to the illnesses in the towns, but that the agency is investigating it.

In 2013, the government opened a water treatment plant in El Salto, but the facility only cleans out part of the waste, said Sinai Guevara, coordinator of the toxics campaign for the Mexico branch of Greenpeace. The environmentalist group tested the river in 2012 and 2013 and found neurotoxins, as well as hormone-disrupting acids.

Chemical plants, breweries, electronics factories and food-processing facilities dump the most heavy metals and cyanide in the river, according to Greenpeace. More than two-thirds of rivers in Mexico are polluted and the Santiago is among the top three, only behind other waterways in Chile and Brazil, the group says. —AFP