

Landfill sites are being viewed as mines with buried riches

By Kate Kelland

LONDON — Inspired by high oil prices, a sharp rise in the value of old plastic is encouraging waste companies across the world to dig for buried riches in rotting garbage dumps.

Long a symbol of humanity's throw-away culture, existing landfill sites are now being viewed as mines of potential that could also help bolster the planet's dwindling natural resources as the world population grows.

"By 2020 we might have nine billion people on the planet, we could have a very big middle class driving millions more cars, and we could be in a really resource-hungry world with the oil price climbing and a supply situation in Libya, Russia and Saudi, where natural gas is limited," said Peter Jones, a leading expert on waste management in Britain. "It is those drivers, those conditions, which will encourage the possibility of landfill mining."

In Britain alone, experts say landfill sites could offer an estimated 200 million tons of old plastic - worth up to £60 billion, or \$111 billion, at current prices - to be recovered and recycled, or converted to liquid fuel.

With many oil analysts predicting that oil prices will stay above \$100 a barrel, waste experts in the United States, Europe and across Asia have been conducting pilot projects to recoup old plastic and other waste materials.

Prices for high-quality plastics like high-density polyethylene have more than doubled to between £200 and £300 per ton, from just above £100 a year ago, according to industry experts. With this in mind, leaders of the world's waste management industry are planning to come together in London in October for what is being billed as the first "global landfill mining" conference.

"Once plastic is in a landfill site, it pretty much sits there doing nothing, and the beauty of that is that you're able to go back and recapture it in the future," said Peter Mills, who is a director of New Earth Solutions, a waste and recycling company. "There are some really buoyant prices around, because plastic is all manufactured from oil, so as the raw price of oil goes up, every commodity derived from it goes up accordingly."

According to the Organization for Economic Cooperation and Development, the amount of household garbage thrown out across the world is expected to rise to about three billion tons a year by 2030 from 1.6 billion tons in 2005.

Many of the world's rich countries send about half of that trash to landfills, but the OECD projects that the rate will fall to 40 percent by 2030 as governments promote recycling of materials like metals, glass and paper, or incineration to generate heat or electricity.

"Over a period of a very long time - many decades - we have had a policy of burying whatever we can in landfill sites - so there are valuable resources in those sites," said Steve Whatmore of Orchid Environmental, a waste and recycling company. "And wherever there are valuable resources, there is always the temptation to investigate whether it's worth recovering them. The logic is sound, but the practicalities are complex, and you have to balance those out with the commercial viability."

Landfill mining, digging in dumps for valuable materials, is hardly a new concept, and already viable for some. Images of poor people scavenging waste to sell from landfill sites in Asia and South America have already provided evidence that there is money to be made from other people's garbage.

William Hogland, professor in environmental engineering and recovery at the University of Kalmar, in Sweden, also points to previous instances of dumpsite mining in Israel in the early 1950s where the soil, enriched with rotting waste, was recovered and recycled to improve soil quality in orchards.

And some U.S. states have mined waste from landfills since the 1980s for use as fuel to produce energy. "Several pilot studies have been carried out for research or pre-feasibility studies in countries in Europe, but also in China, Japan and India," Hogland said.

For global waste experts, not everyone's garbage is the same: Different sites have different potential and an individual country's or region's dumps show characteristics relating to the culture, historical development and economic climate. "Landfills in Sweden dating from the 1960s have a lot of waste building material, reflecting the construction boom of that era," Hogland said. "And other landfills have very specific waste, like those used by vehicle breakers, which have high concentrations of aluminum, copper and iron scrap."

The value of these materials varies daily with global market prices, he said. For example, today there is considerable demand for scrap metal from China. But in Britain, it is in the millions of tons of plastic that people threw out in a pre-recycling era that experts see a potentially lucrative future. That potential is clear to Chris Dow, managing director of the first so-called closed-loop recycling plant in Britain, which can recycle plastic bottles to a standard high enough for reuse as food packaging.

Closed Loop London is one of only six such plants around the world - in Austria, Germany, Mexico, Switzerland and the United States - that processes polyethylene terephthalate, or PET plastic, used for water and soda bottles, and high-density polyethylene. The London plant has the capacity to recycle 35,000 tons every year.

A passionate recycler, Dow is convinced that there is value buried in garbage dumps, but he is angry that talk has turned to investing in technologies to harvest it rather than focusing on

stopping more plastic from being dumped now. "Just imagine the resources that are lying in those landfills - it could be incredible," he said. "But the insane thing is that we are talking now about investing millions into tapping into a resource under the ground when the real tragedy is that every week we're still dumping tons and tons of plastic into more landfills. It's an act of vandalism against the environment."