# Mine waste could be cut by 30pc: Hatch

**Stuart McKinnon**
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Jan Kwak. Credit: Gillianne Tedder

Australia's mining industry could reduce mine tailings by up to 30 per cent using existing technologies and by as much as 50 per cent in the next 10-20 years, according to global engineering firm Hatch.

A report by the company - which identified technologies required to reduce or eliminate tailings in the mining of copper, gold, iron ore, nickel, coal and bauxite - found that there are enough near-commercial technologies available today to, in principle, reduce tailings by up to 30 per cent.

Hatch's Australia and Asia managing director Jan Kwak said Jan said the company's analysis revealed the waste reduction target could be achieved by available approaches to geometallurgy and grade engineering, coupled with advanced sensing technologies for better understanding of ore bodies.

"We also found that by integrating these technologies in future projects or expansions, in the next 10 to 20 years, the opportunity exists to reduce tailings by more than 50 per cent on some mines," he said.

Hatch noted the adoption of renewable energy such as wind, solar and battery power would require a steep increase in the production of minerals essential to the transition.

CITIC Pacific Mining's tailings dam at the Sino Iron project at Cape Lambert. Credit: CITIC Pacific Mining/CITIC Pacific Mining

According to the International Energy Agency's 2021 Net Zero by 2050 report, the consumption of lithium and cobalt will rise six-fold by 2030, nickel will increase four-fold and copper two-fold.

Increased mine production to meet the demand will also result in increased tailings prompting miners to increasingly focus on how they can reduce waste.

Mr Kwak said miners that seized the opportunity to reduce waste could achieve a "triple bottom line gain".

"If we can get this right, mines that reduce or eliminate tailings are simultaneously reducing energy consumption and operating costs, reducing carbon dioxide emissions, reducing their impact on the land and thus improving the ability of future generations to use the land productively," he said.

Hatch noted the possibility that tailings could be used to capture carbon dioxide from the atmosphere in a process known as chemical weathering.

BHP is investigating how it can use tailings from its Nickel West operations near Leinster to capture carbon from the atmosphere and store it.

The tailings, which are rich in magnesium oxide, react naturally with carbon dioxide to form magnesium carbonate, trapping CO2 safely and permanently. BHP is trialling several methods aimed at increasing sequestration rates.

Hatch said while the process was beneficial, it was still more desirable to reduce tailings as they had to be stored in a way that posed no threat to the environment.

Mr Kwak is chair of Green Hydrogen Consortium, which seeks to investigate the use of green hydrogen to accelerate decarbonisation in the mining sector, and oversees the world's biggest solar energy project, Sun Cable's Australia-Asia Power Link.