Sugar Waste to Fertiliser

Why in news?

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CSIR lab has developed a solution to separate hazardous pollutant from organic matter in sugarcane distillery process.

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What are the concerns with sugarcane distillery process?

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- For every litre of alcohol produced from fermentation of sugarcane molasses, distilleries generate 10-15 litres of wastewater effluent or “spent-wash”.
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- Molasses-based distilleries in India churning out 2.5-2.6 billion litres of alcohol discharge 30-35 billion litres of this hazardous residual liquid annually.
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- This Spent-wash if disposed untreated can contaminate surface and ground water
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- Distilleries in India currently manage their spent-wash mainly by converting it into manure by mixing the wastewater with press-mud, a residue from sugar mills.
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- However, press-mud is available only during the 150-160 days when the mills are running, forcing the distilleries to limit their operations to the crushing season.
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What is the recent development of CSIR lab?

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- The Central Salt & Marine Chemicals Research Institute (CSMCRI) will

recoverypotash salts from the “lean” spent-wash, which then undergoes evaporation to yield recycled water and residues.
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- The residues are further mixed with the organics recovered in the first stage.
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- The technology separates complex organic compounds from spent-wash through a coagulation process.
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- This generates valuable organic matter (which can be converted into animal feed formulations), potassium nitrate (fertiliser) and reclaimed water (reusable in the molasses fermentation process).
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- The process yields 10 tonnes of complex organics, 2.5 tonnes of potassium nitrate and 75,000-80,000 litres of recycled water from every one lakh litres of spent-wash.
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What is the significance of this development?

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- The recent technology will help distilleries comply with the Central Pollution Control Board’s mandated zero liquid discharge (ZLD) action plans.
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- It would also meet up to a tenth of India’s potassium-based fertiliser requirements, now entirely met through imports.
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- This will encourage more distilleries to come up and produce ethanol for blending with petrol, cutting the country’s oil import bill and bringing sugarcane growers better returns.
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Source: Indian Express

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