Bio-remediation

Why in news?

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Raaginii Jaain, a national expert on the Swachh Bharat Mission, has developed a rapid bioremediation process for old dumps successfully.

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What is Bio-remediation?

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- Bioremediation is a waste management treatment that uses naturally occurring organisms to break down hazardous substances into less toxic or non toxic substances.
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- Biomining is an environment friendly technique of extracting metals from ores, other solid materials like waste using micro-organisms.
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- These methods are simple and low cost solution for reducing the garbage hills and also permanently reduce the emission of harmful gases and leachate.
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What are the harmful effects of garbage fills?

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- It causes many issues right from foul odour, emission of harmful gases which contributes global warming, leachate (a black liquid oozing from the waste) that seeps into soil polluting the ground water.
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- As the cities are expanding, landfills become closer to the human

establishments.
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What are the steps taken by the government?

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- Based on the report of an expert commitee in 1998, the Municipal Solid Waste (Management and Handling) Rules, 2000 were notified by the Ministry of Environment and Forests.
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- It specified that landfill sites should be allocated on which sanitary landfills should be developed to receive the final residual waste.
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- The Solid Waste Management Rules, 2016 now cover more than only municipal areas, provide for collection charges and for penalties on waste generators for non-compliance.
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- Unlike the earlier Rules, it makes it the duty of every waste generator to segregate the wet waste from dry waste.
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How does the new process work?

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- In the new process developed by Raaginii Jaain, organic fraction of the original waste is degraded biologically by the bioculture.
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- Once the waste is stabilised, it goes for bio-mining.
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- There it is separated into different fractions which can then be used for different purposes, eg, for compost, road sub-grade, making RDF (Refuse Derived Fuel) pellets, recycling plastics, or inerts for landfills.
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What are the advantages?

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- After 4 weeks of this process developed, there is about 40% volume reduction in the waste.
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- The previously held waste dumps are now fully recovered for alternate uses such as waste management and reduced ill-effects of the waste in landfills.
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Source: Financial Express

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