Now, a device that converts toxic waste into electricity

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Washington, Dec. 27 -- Environmental engineers at Pennsylvania State University, US, are developing a device that would be able to clean toxic waste from mines and convert it into electricity.

According to a report in Live Science, the researchers tested a lab-scale version of their invention on fluids tainted with iron, similar to polluted water from mines.

The device attacked the dissolved iron, removing electrons from it. This generated electricity while at the same time making the iron insoluble, thus efficiently pulling this contaminant from the water.

"The iron that the device recovered could find use as a pigment for paints or other products," said the researchers. "In principle, such a machine could also pull other metal contaminants from polluted water," they added.

Contaminated water seeping from coal and metal mines is a serious environmental hazard that endangers the safety of drinking water supplies and the health of plants and animals. This caustic pollution-loaded with metals such as arsenic, lead, copper, iron and cadmium—is currently difficult and costly to treat.

The new device would be able to fight this environmental problem effectively, as well as providing an alternative source of energy.

But, the problem with the device is that so far, it only generates a modest amount of energy.

For example, "A fridge-sized version might light up a small incandescent bulb," researcher Bruce Logan told Live Science.

Still, the researchers hope to significantly improve power output in future versions, as well as bring down costs.

"It's an exciting start," said researcher Brian Dempsey.

"We are also working, in other research projects, on removal of arsenic and other contaminants," he added.

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