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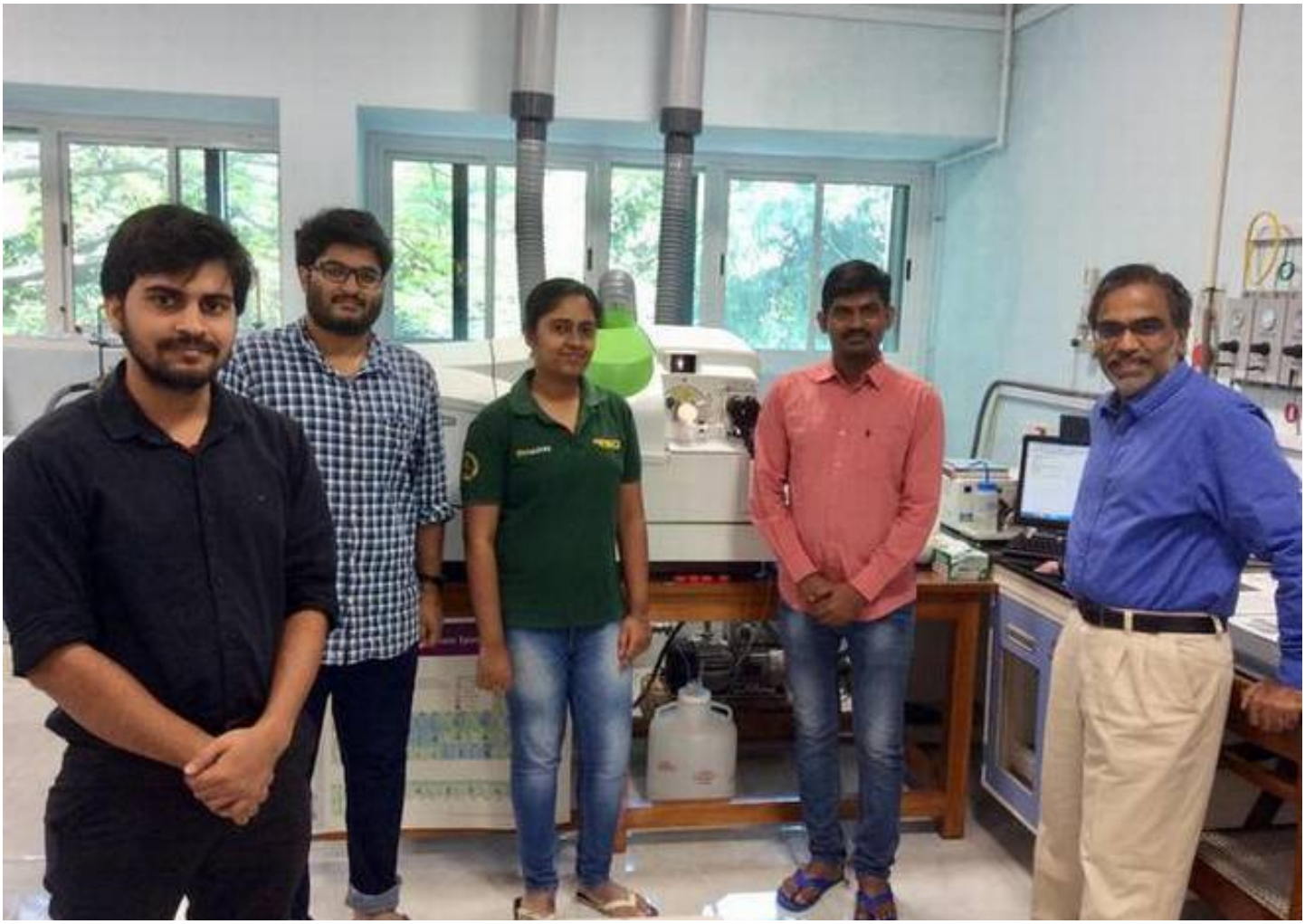
# Research for change



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## A student-driven project at the IIT-M is being widely used to eliminate arsenic from water

A professor and his students at the Indian Institute of Technology - Madras (IIT-M) have developed a technology to remove arsenic from water and make it potable. Over a period of 10 years since the project began in 2008, the researchers have finally seen the benefits of their work on the ground. The technology developed by the Institute is being used widely in West Bengal and Punjab to eliminate arsenic from water.

In as many as eight to 10 states in the country, the groundwater contains a large amount of arsenic — a chemical that is a major health hazard causing an increase in cancer mortality

rate. States such as West Bengal, Assam, Bihar, Chhattisgarh, Jharkhand, Nagaland, portions of Uttar Pradesh, Manipur and Punjab bear the brunt of arsenic deposits in water. In these states, the concentration of arsenic is as high as 200 parts per billion litres (ppb) when the permissible limit is only 10 ppb. Until recently, the only solution was installing reverse osmosis plants, which were expensive.

**Cost effective**

IIT-M's solution was to develop a material that can selectively absorb arsenic from water. "Over nine lakh units have been installed benefitting 70 lakh people," says T. Pradeep, professor of chemistry at the Institute, who leads the research. In Punjab, using the same technology, around 10 million litres of clean water are currently being provided.

The cost of removing arsenic is less than two to five paise per litre of water, which is far less compared to the budget governments must allocate to put up reverse osmosis plants.

"What is clear from this data is that all forms of water quality situations spread across the country, in arsenic affected areas can be tackled by this technology.

In places where there is a genuine desire to solve this menace, this solution is being implemented. We can confidently say that the arsenic menace can be wiped out from the country," says Pradeep.

**Way forward**

"Right now, we have only community scale units, but we are still developing the technology that would make it viable for domestic use," says Ramesh Kumar Soni, an M.Tech student who is now involved in the project.

The material developed by the IIT-M uses no chemicals and is "by the water, for the water", according to him. Ramesh is excited about the project which won the Millennium Alliance Award. He is now improving upon the material that can be installed for domestic use.

A native of Rajasthan, Ramesh says that in his state the problem is fluoride in water. He would get to that issue at a later date as his specialisation is understanding contamination of groundwater.

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