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### Low-cost nano water purifier developed

T. Nandakumar

*Gearing up for commercial release*

Scientists at the Indian Institute of Technology-Madras (IIT-M) are gearing up for the commercial release of an affordable nano technology-based water purifier.

The purifier has been developed to address the problem of arsenic contamination, a threat to drinking water sources and an emerging health hazard in several parts of the country.

The Arsenic Task Force of the government of West Bengal has certified and approved the purifier developed by IIT-M. "The pilot phase is over and we are now preparing to take it to the market," said T. Pradeep, professor, department of chemistry, who heads the research group working on water purifiers.

The team has incubated a company at IIT-M to commercialise the technology, Dr. Pradeep told *The Hindu* on the sidelines of the Nano India conference organised by the department of science and technology and the National Institute for Interdisciplinary Science and Technology (NIIST) in Thiruvananthapuram.

The purifier developed by IIT-M uses iron oxyhydroxide, a nanostructured material, to remove arsenic from drinking water. It functions without electricity or piped water supply.

Dr. Pradeep said it could provide arsenic-free water at an approximate cost of five paise per litre. "Over the next few years, we hope it will benefit at least 10 per cent of people living in arsenic-contaminated areas."

The IIT-M-incubated company will commercialise the technology with partners who can take up distribution.

The research group has also come up with a nano material-based fluoride water purifier.

"It will take some more work for field implementation of this purifier. We expect the technology to be ready in six months."

Dr. Praveer Asthana, director of the nano mission under the Union department of science and technology said the water purifiers developed by IIT-M highlighted the relevance of industry-institution projects in the nano technology sector to deliver affordable, efficient solutions.

### Key role

Dr. Pradeep said nano materials could play a key role in low-cost solutions to remove water contaminants. "They interact with the contaminant to remove it within a very small contact time. It is also possible to tune the chemistry of any of these materials so they can attack a wide spectrum of contaminants."

IIT-M has already developed and commercialised a nano silver-based water purifier that breaks down pesticide residue.

The research team is working on an all-inclusive water purifier to address a wide spectrum of contaminants like pesticides, mercury, cadmium, lead, fluoride and arsenic.

The group is collaborating with scientists working on other methods of water purification like reverse osmosis, membranes and solar and thermal technologies.

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***The purifier will be able to provide arsenic-free water at about five paise per litre***