

Students across India test water for fluoride

[Schools Water Portal](#), an initiative of [Arghyam](#), is a collaborative website that shares learning resources on water with teachers, students, parents and school managements. Leading up to World Water Day on March 22nd 2012, Schools Water Portal partnered with [Oracle Education Foundation](#) in a [Water Quality Testing Programme](#) with schools across India to spread awareness on fluoride contamination in groundwater.

[Schools Water Portal](#) is an online platform that shares learning resources on water with parents, students, educators and school managements. The Portal is a voluntary initiative coordinated by [Arghyam](#), a non-profit organisation started by Rohini Nilekani that works in water and sanitation in India.

The programme was conducted with 1,339 schools from places as far reaching as Assam, Jammu and Kashmir, Kerala and the Andaman and Nicobar Islands. Kendriya Vidyalaya Sangathan and Delhi Public School both participated, as well as other schools from across the country.

A fluoride testing kit was sent to each school, and instructions on using the kit, collecting groundwater samples and testing for fluoride were put up on Schools Water Portal. Teachers could also access learning resources like presentations and fact sheets on fluoride and fluorosis on Schools Water Portal, which they used in class to complement the practical water testing exercise. Teachers submitted the results of the testing through a simple online form, enabling easy, decentralised data collection. See the programme page [here](#).

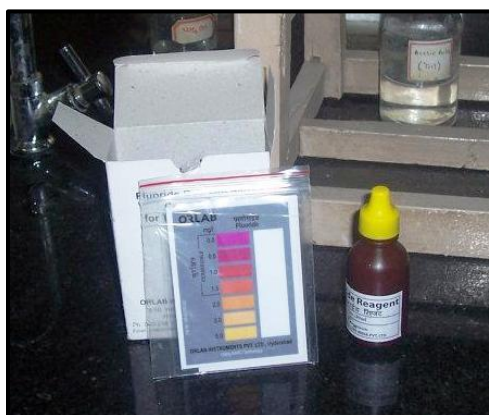


Fig 1: Fluoride testing kit



Fig 2: Schools Water Portal home page

The Water Quality Testing Programme was an experiment using the internet to sensitise school children on the widely prevalent issue of fluoride in drinking water, a problem that affects 6.6 crore people in 19 states of India¹. More than 20,000 students across India learned about the harmful effects of fluoride in groundwater, and the resulting health implications of fluorosis.

Teachers and students showed immense appreciation for the programme, saying that what they learned about fluoride contamination was invaluable. Nisha Saxena of Kendriya Vidyalaya Allahabad went beyond the fluoride testing, arranging a talk by an expert on fluoride contamination in the school assembly. Kendriya Vidyalaya Mangalore created a blog (<http://arghyamprojectkv2mng.blogspot.in/>) showing their participation in the programme, while another teacher, Naveen Verma, shared pictures of his class doing a skit on fluoride, with some students reciting poems and enacting a mime for the rest of the school (see figure 5 below).

¹ UNICEF State of Art Report 1999; FR & RDF Data Bank

Testimonials received from teachers

"Thanks for providing us with an opportunity to be a part of your nationwide project. We had an excellent learning experience." - Sumathi Madhavan of Kendriya Vidyalaya Koliwada, Mumbai

"Today's project members may be tomorrow's scientists. This project is one of the most innovative projects reflecting real life in the 21st century. My students really enjoyed it." - Mr. Sreejith, Kendriya Vidyalaya teacher

"The project was excellent. It created awareness among students about groundwater contamination and the importance of water in our system. The test was very simple and the results were visible. It really created a scientific temper among the students who did it enthusiastically and brought water samples from different places tirelessly. We hope you bring more projects of this kind and request you to include us in your future projects." - Gayatri V. from Kendriya Vidyalaya Dharwad



Fig 3: Kendriya Vidyalaya Ujjain, Bhopal



Fig 4: Government High School Bangalore



Fig 5: Students performing skit



Fig 6: Delhi Public School, New Delhi

Social media played an important role in this programme, enabling teachers and students to share their learning experiences with each other. An open Facebook Group allowed teachers and students to share their pictures and videos and interact with each other, creating a buzzing community online.



Fig 7: Facebook Group

The enthusiastic participation of students is evident from the pictures and videos that the teachers took to document the process. To view all the pictures and videos on the Facebook Group, click here: <https://www.facebook.com/groups/343173525711240/>

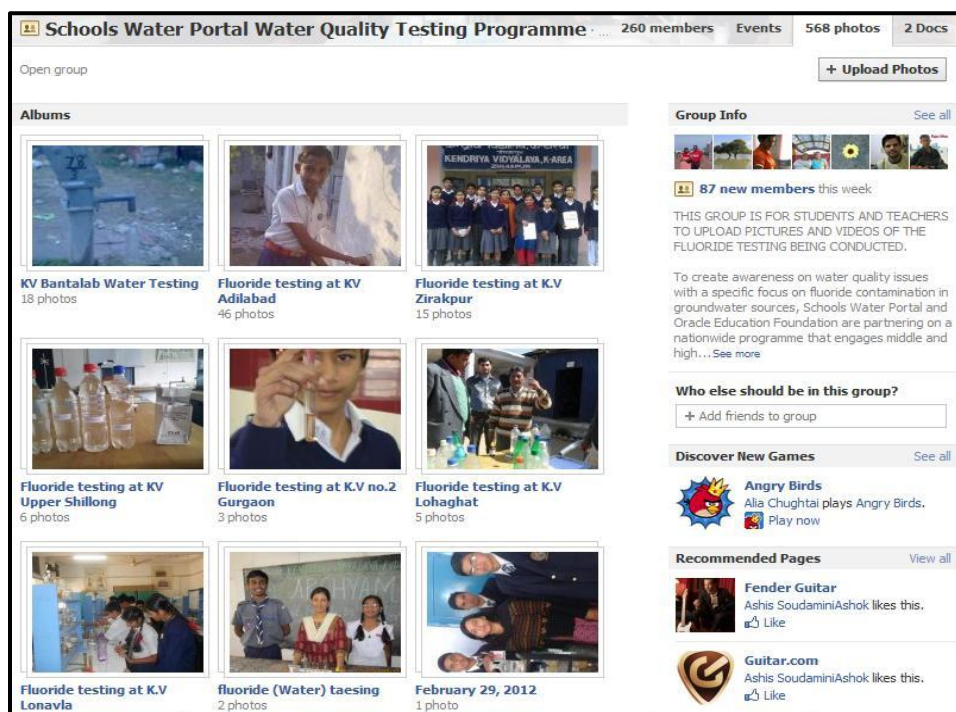


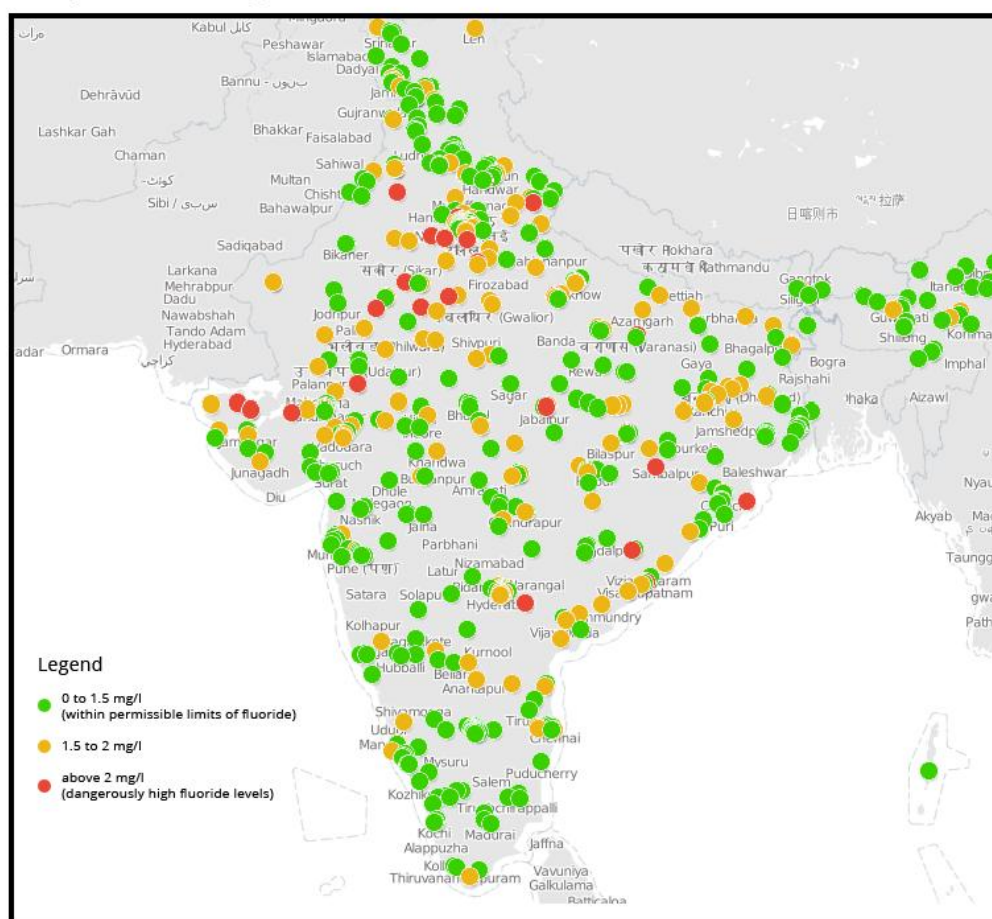
Fig 8: Photos and videos on Facebook

The fluoride levels recorded by schools around India were visualised on an online map. The map shows fluoride results submitted by each school. Every coloured dot represents the average of all results submitted by each school. Of the total samples tested, green indicates a result of up to 1.5 mg/l which is within the permissible level for fluoride. Orange represents fluoride levels between 1.5 and 2 mg/l, which is above the permissible level of fluoride according to the Bureau of Indian Standards but still at a level where coping mechanisms exist (such as rainwater harvesting, water filters and better nutrition). Red represents a result of more than 2 mg/l, which indicates a dangerous level of fluoride.

As of March 17th 2012, 679 schools have submitted results. However Schools Water Portal is still receiving results from schools. **See the map online here:**

<http://www.schools.indiawaterportal.org/map/index.php/map/cumulative>

Map showing visualisation of fluoride levels in India



Disclaimer: This map is for illustrative purposes. The results were arrived at using a field testing kit, and the test was conducted entirely by students from class 5 to 10. The exercise was purely for educational purposes, and data is merely directional. Arghyam has provided this information in good faith and in the belief of the correctness and usefulness of the fluoride results received from schools. Arghyam cannot be held responsible for any harm that may result in the usage of these materials and Arghyam expressly disclaims all liability resulting out of the use of this material.

Fig 9: Map

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