

Making Children Count

An Action Plan for Remuna block in Balasore, Odisha



April 2017

FLUORIDE KNOWLEDGE AND ACTION NETWORK

Making Children Count





Balasore within Odisha



Outline map of Balasore



Swaniti and Fluoride team members in discussion with District Officials

Background

Balasore district in Odisha had not been recognized as highly Fluorosis affected till now and the National Rural Drinking Water Programme (NRDWP) database of Water quality affected habitations did not even mention this district having a single well high in Fluoride, even though more than 200 such districts are listed in this database. Though some research had been done by local and national institutions about the problem in Remuna, no public bodies or institutions had noticed the plight of the fluorosis affected people.

It was due to the Balasore Member of Parliament (MP), Mr Rabindra Kumar Jena's initiative that the problem finally came to light in 2015-16. A round table discussion with Parliamentarians by Arghyam and Swaniti Initiative helped to bring out the issue and the need for action on it.

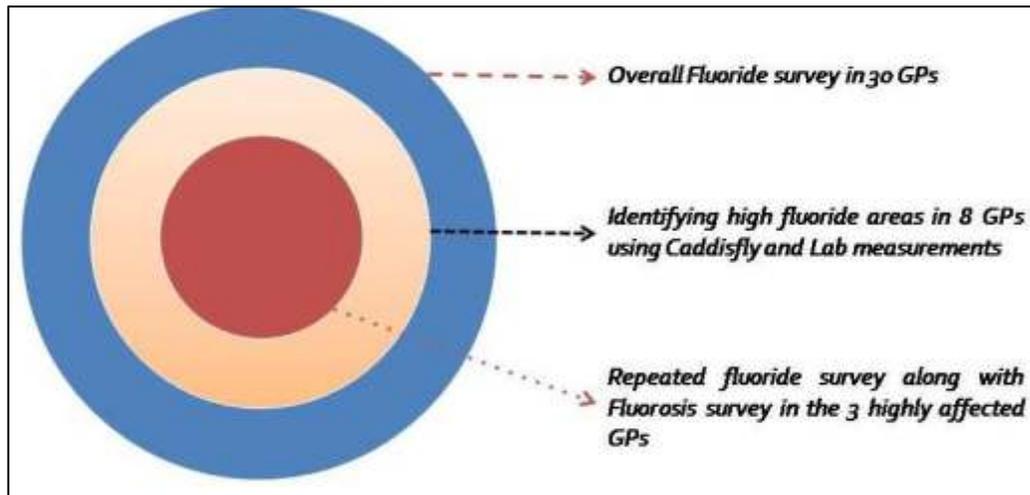
With the help of the Fluoride Knowledge and Action Network (FKAN), a District Fluoride Mitigation Committee (DFMC) was formed in June 2016 and a parallel sub-committee got formed in Remuna block of Balasore.

Since then relevant departments in the district have been carrying out initial spade work on finding out about the problem through field assessments.

Field Assessments

The field assessments started with the Fluoride Knowledge and Action Network setting up a local team of two members in Balasore.

Before getting to their task, the local team was trained by FKAN experts in Anand, Gujarat as part of a National training on fluorosis for Civil Society, organized in July 2016. Apart from this, they were also exposed to the latest research on Fluoride and Fluorosis by participating in the International fluoride conference held in Hyderabad during Nov



The three distinct phases of Assessment

There were three distinct phases of progress to these assessments that were finally able to emerge-

- a) At first; an overall survey in 30 out of 36 GP's in the district
- b) Which led to a narrowing down and identification to the top 8 highly affected GP's from among them
- c) And finally the team was able to identify 3 most affected GP's. where it carried out assessment



Local team member Rabindra carry out home based field assesment

Trainings were carried out for Sarva Shiksha Abhiyaan programme officers and School teachers on Fluoride and Fluorosis to help these assessments, as part of which, teachers were taught the basics of the problem, collection of water samples and identification of Dental fluorosis cases. They were also oriented with the condition of Skeletal fluorosis so that referral of such cases can be done if observed.

Water samples were collected from Schools and from nearby locations, A Total of 188 Schools participated in this exercise, 3 Water sample bottles were provided to each school. Totally there were 439 Water Samples have been testing using Fluoride testing Kit.

The procedure followed was to collect Water samples exhaustively from all the GPs of the District with 3 samples per school from the water samples for drinking nearby. A Water testing laboratory was set up at Remuna block headquarters where all these water samples were tested for indicative presence for fluoride.

After identifying the high Fluoride locations, an equal sample of safe and unsafe Fluoride water samples were tested in a certified laboratory. Also, the GPs where such high Fluoride wells were identified were surveyed for Fluorosis cases, with Dental, Skeletal and other forms of fluorosis were identified



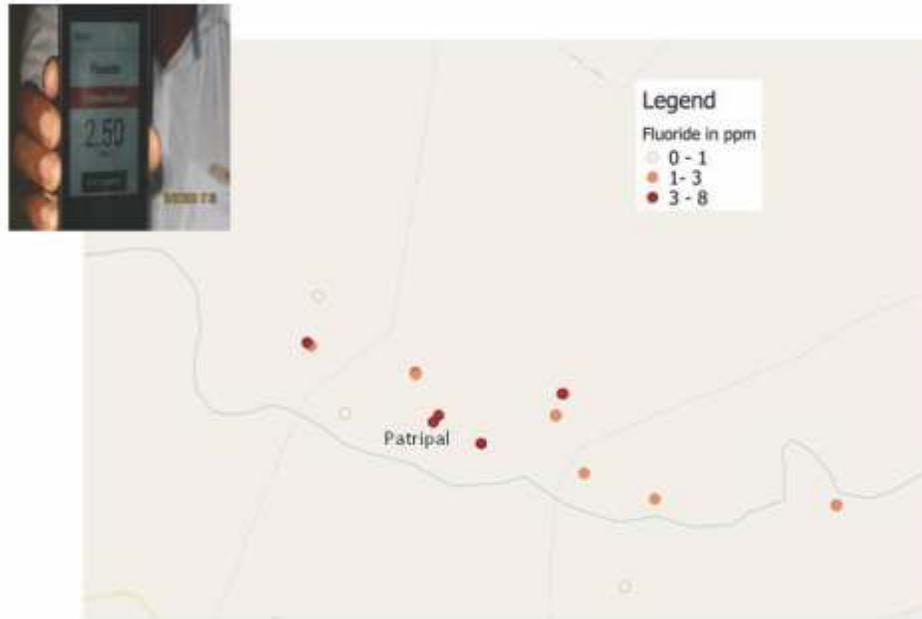
Mapping of Fluoride water tests with indicative kit based results of 439 water samples

Water testing

A Total of 30 out of 36 GPs of Remuna block responded to the Fluoride water testing survey. In this procedure, a total of 439 Water samples were tested from these GPs. Out of these, 30 Water samples from 3 GPs showed Water samples with high Fluoride. The three GPs of Patripal, Gududa and Chasakhanda showed higher number of high Fluoride samples out of the 30 GPs from which water samples were reported

These 30 high fluoride water samples and an equal number of randomly selected low fluoride water samples were then tested in a certified laboratory.

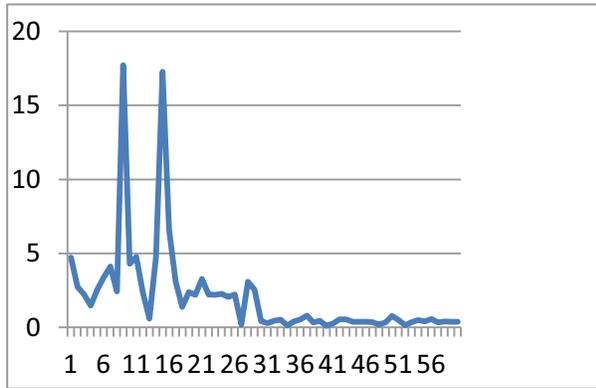
Apart from the above mentioned 3 GPs, the following GPs also showed few number of water samples with high fluoride: Kalyanpur, Badpal and Nizampur. A summary of these high Fluoride water samples is provided here:



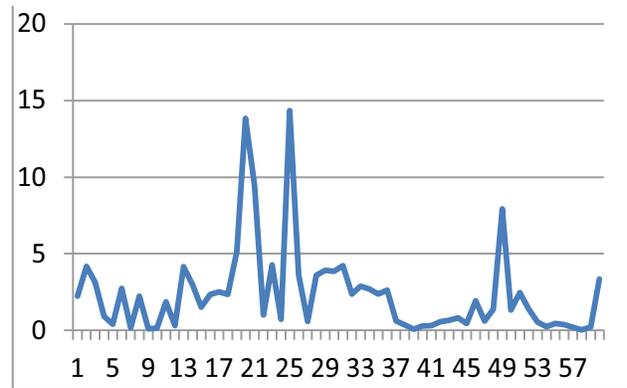
Fluoride detection and mapping using Mobile based detection instrument Caddisfly. High values greater than 8 ppm found in Patripal area

Range	No of samples	Avg
1 ppm – 3 ppm	15	2.21
3 ppm – 5 ppm	9	3.94
5ppm – 10 ppm	1	6.57
>10 ppm	2	17.4

As can be seen from the chart above; While the number of samples greater than 5 ppm are few, but the concentrations are alarming. At this level, fluoride is also neurotoxic and can cause nonskeletal and serious health problems to people, causing birth disorders, development problems, and a serious concern for growing children. The situation needs to be taken seriously after this assessment, and urgent attention needs be made for Safe water supply to the affected habitations. The total population of these highly affected GPs is 18,212 and one can take this as a lower figure for a total fluorosis affected population in Remuna



First round of Lab testing of 60 samples (vertical axis is fluoride concentration in ppm, horizontal axis is sample number)



Second round of lab testing of 60 samples

Health Surveys

Dental Fluorosis



Dental fluorosis patients

Dental Fluorosis surveys were conducted in all the GPs where high fluoride had been found. Medium to severe Dental fluorosis was present among school children in all of these affected habitations. Around 20%-30% of school children are affected with Dental fluorosis within these habitations.

Also amongst the adults that we observed we were able to see Dental fluorosis, showing that the problem was not very recent, but was at least some 20 years old or more. which means that the population had been exposed to high fluoride for quite some time, hence it is now affecting them more seriously.

Skeletal fluorosis

Skeletal fluorosis was seen mainly in villages of Patripal panchayat, but was also seen in Gududa and Chasakhanda villages. it was seen mostly in adults beyond the age of 25, but few skeletal fluorosis cases amongst children were also discovered. Around 40-50 Skeletal fluorosis cases are present in these villages with visible bone deformities, and a few 100 skeletal fluorosis patients are present with joint pains and other non skeletal symptoms. At the rate things are developing; with mass symptoms of Joint pain and dental fluorosis developing, one would expect a few more hundred Skeletal fluorosis cases to develop in the coming years if their problems were not looked at.

An overall summary of Field assessments

- Water Sources in 30 GP's out of 36 that were tested
- High fluoride was found in 8 out of these 30 GP's
- 3 GP's out of these 8 were those that were very seriously affected and they were Patripal, Gududa and Chasakhand
- One could see very similar trends of Dental fluorosis, Skeletal Fluorosis, Stunting and Malnutrition as associated problems in the schools that were visited in the 3 highly affected GP's of Patripal, Gududa, and Chasakhand:
- Dental Fluorosis was omnipresent in almost all the children that were seen.
- 50 % of children above class-3; that the team found showed some forms of symptoms of skeletal Fluorosis or the other.
- In Patripal; because it had been able to garner more attention and there had been more effort on informing people on the dangers of Fluoride; handpumps that were contaminated were marked with a red cross. Which was not so in Chasakhand and Gududa



Skeletal fluorosis affected child



We need to give attention to this problem very seriously

Recommendations to Departments

- **Rural Water Supply and Sanitation:** Ensure Fluoride free Safe water in all 6 GPs that are highly fluoride affected. Either have dedicated Water tanks and basic drinking water assured at doorstep; or Arrange for Water treatment plant as an intermediate solution. Give priority to the high Fluoride locations.
- **Health and Family Welfare Department:** Carry out Fluorosis Survey every year with a sample plan. A baseline can be conducted in 2017 and this should be repeated every year.
- **ICDS:** Integrate Fluorosis specific nutritious plan within Mid Day Meal , Anganwadi and for pregnant mothers. Begin with 1 day a week for Fluorosis specific nutrition, made local nutritious food rich in Fluoride combating nutrients
- **Sarva Shikshan Abhiyaan:** Continue Water collection from schools and nearby locations as an exercise to be repeated every 3 months. This can be done to show wide sample testing on indicative basis. We have seen that already a lot of awareness has been generated by the exercise till now of involving school teachers.
- **Others:** Support devices for Skeletal Fluorosis patients are urgently needed. Also special Pension plans for such affected patients have to be brought in. An Integrated communication campaign for DFMC needs to be developed so that a long term behavior change is sustained by the community with the help of different government departments. We need to work on reducing Fluoride water in Irrigation. This should be the next step after having control on fluoride in drinking water

@fluorideindia on twitter

Facebook group fluorideindia

@fluorideindia on Medium

About Fluoride Knowledge and Action Network (FKAN)

The Fluoride Knowledge and Action Network (www.fluorideindia.org) is a nationwide body formed in 2013 with an objective of bringing solutions to Fluoride affected people across India. The FKAN was initiated by Arghyam, a philanthropic trust based in Bangalore and is coordinated by INREM Foundation, an Anand, Gujarat based organization working on Water quality and Health issues.

Within the few years of its existence, the FKAN has grown towards a unique network consisting of the prime experts of the Fluoride issue, main institutions within the Government that are mandated to deliver the solutions, and important civil society groups which are innovating on new ideas.

In few states such as Assam, Telangana, Madhya Pradesh, Karnataka and Andhra Pradesh, the network has been able to develop working models of mitigation efforts, both as community based programmes, as well as convergence within Government institutions. A key effort of FKAN has been to bring Safe water, Health and Nutrition perspectives together on this single issue, and on one platform.

Limbs of a Disaster – A typical twisting of limbs known as Genu Velgum in a very complex condition for a Skeletal Fluorosis affected woman. As fate, she accepts her condition and carries on with her daily life.

A Stigma from Water – A Walking stick is the only companion for many Skeletal Fluorosis affected patients in Nalgonda. Life moves around this stick, and it becomes more real than other humans around.

Young minds with new hope – Nutrition is the ray of hope for children, who are promised good food in Anganwadi and Mid-day meal programmes by new zeal of work. They will carry memories of this disease, and perhaps none else.

Threads of Recovery – Within gloom, few bright spots of recovery are seen more in Nalgonda now. Appropriate surgery at the right time saves this man from further deterioration and gives his family something to smile for.



FLUORIDE KNOWLEDGE AND ACTION NETWORK (FKAN)

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