

Note on water quality / Fluoride problem in Nalgonda

Introduction

Nalgonda is the worst effected districts with a presence of excess fluoride in ground water in the state of Andra Pradesh. In spite of continuous efforts by the govt. of AP, external support agencies, NGOs and private enterprises the problem still remains unsolved. There are 59 mandals with 1175 Gram panchayats and about 3100 habitations in the district. District is totally agrarian with rain fed agriculture with only about 10% irrigation under canals.

Drinking water schemes: Nalagonda is one of the seven SRP districts in AP. RGNDWM have relished second instalment. About 240 villages have been covered under SRP in the district. Water supply schemes by types in the district is presented in the table below

Table: 1 Water supply schemes by time in the district:

Sl.no	Type of schemes	Nos
1	Hand pumps	16403
2	Piped water supply schemes with storage reservoirs	713
3	Mini PWS/ direct pumping	1591

Most of the drinking water schemes in the district are ground water based. Most of the villages are covered by either by hand pumps or piped water supply schemes. Number of water supply schemes by type is presented in the table above. There are no multi village schemes with surface source in the district working as of today. Very few multi village/regional schemes in pipelines are given below.

CPWS from AM Madhava Reddy canal: This scheme is under implementation at a cost of 175 crores with NABARD assistance. It is expected to be completed by early 2004 at the cost of 100 crores covering 355 habitations

Bibi Nagar water supply scheme: This is an incomplete scheme due to non-availability of bulk water from the sources (MI tanks) proposed at the time of designing (could be due to improper planning). Subsequently govt. has decided to cover the reroute villages of Nalagonda district as part of World Bank assisted water project for Hyderabad city.

CPWS scheme from Krishna river: Proposal has submitted very recently with a project cost of 37 crores to cover 175 habitations under Marriguda, Chintapally, Nampally and Devoram mandals

Others: In addition to above scheme drinking water is supplied through transportation by the govt, Local MLAs, few NGOs. Also treated/ potable water is sold by the private enterprises in the villages in Nalagonda, Narketpally and chout Uppal Mandals. It was informed that there are three plants run by the private entrepreneurs, which are treating water with reverse osmosis technology in the districts.

Extent of fluoride effect

As per 1992 survey about 1122 habitations in the district were fluoride affected. However as per the latest reports about only 643 habitations were identified as fluoride affected habitations. Mandal wise fluoride affected habitations are presented in the table below.

Concentration of fluoride Affected habitations	No. Of mandals	Remark
No fluoride villages	11	It shows 48 out of 59 mandals have fluoride affected villages in the district
< 5 villages (Fluoride affected)	17	
6-10 villages	15	
10 –15 villages	2	
16-25 villages	7	
> 26 villages	7	
Total	59	

Though the number of fluoride effected villages have been brought down considerably by providing water from distant sources for drinking purpose there is no system of regular/systematic monitoring of the water quality there after. Presence of fluoride is up to 8 PPM in certain villages. Munagode, Nalgonda, Marriguda, Chandur, Chityal, Nampally, Narayanpur, Narketpally, choutuppal, Chinthapally, Peddavoora, Thipparthy are severely affected mandals in the district. There is scope for improving water quality monitoring systems in the district on a regular basis. Detailed investigation on ground water availability as well as the extent of fluorides was carried out under Netherlands assisted water supply project during mid nineties and it has been mapped

People are suffering from both dental and skeletal fluorosis in the district. As per the information provided in web site www.nalgonda.org about twenty thousand people are suffering severely from fluorosis. However there is no proper/complete documentation on extent of the effect on the communities though many individuals and institutions have done lot of work on bits and pieces. In many of the villages, the communities particularly the victims of fluorosis have lost faith on any one visits them and discuss about the problem. It was told that many of the agricultural produces like rice, vegetable in some pockets of the district.

High Court Judgment

High court of Andhra pradesh has given a judgement recently on a public interest litigation/ petition directing the GoAP to take necessary measures to ensure potable water to the people of Nalgonda. Directions of the court are as follows.

“ After our anxious, and having regard to the submissions made by the learned Senior Counsel for the petitioner, and the learned Advocate General for the state as well as the member secretary of the APPCB, we are of the opinion that apart from the eight project undertaken by the government (two of already sanctioned) fro bringing water from srishailam left Bank canal as well as other balancing reservoirs in the district, we also deem it appropriate to direct the Government to immediately take steps as under:

1. *Among the villages/ habitation of Narketpally and Narayanpur mandals of Nalgonda Revenue division, the Government/District Collector should identify the villages which have more acute problem of flourosis and immediately take steps for supplying water with optimum fluoride content through water tankers till the projects/schemes undertaken by the govt .are completed.*
2. *We also direct the Government to consider the feasibility of first concentrating on the mandals where the problem is more acute. We are giving this direction having regard to the fact that out of four revenue divisions in the district, in Nalgonda division there are more number of villages where the fluoride content is more.*
3. *We also direct the Government to provide special medical care to all the people affected with flourosis free of cost by involving non-governmental organisations.*
4. *We direct the Government to consider involving non-governmental organisation like Society for Integrated Development of Urban and Rural Areas (SIDUR), Sri Sathya Sai Institute of Higher learning etc.*
5. *It is established scientific fact that the ground water in most parts of the district contains excess fluoride than the standards. Therefore, it is appropriate for the Government to educate the people about the use of ground water from the bore wells. If necessary steps may be taken to close down the bore wells where the problem of flourosis is endemic.*
6. *We direct the Government to consider the feasibility of evacuating the people from affected villages to safer places by planning and undertaking a rehabilitation and resettlement programme: and*
7. *We direct the Government to consider all recommendations made by Sri Chaterjee IAS. Member Secretary of AP pollution Control Board extracted herein above and appoint a committee consisting any two out of three scientific experts VIZ Dr.K.A.V.R. Krishnamachari, Health Advisor, Ashoka Fellow, Society for Integrated Development of Urban and Rural (SIDUR); Dr. A.K. Susheela Director of flourosis Research and Community Development, New Delhi and Dr. Venkateswara Rao, professor, Department of Biosciences, Sri Sathya Sai institute of Higher learning, prashanthi Nilayam, Puttaparthi to study the problem of flourosis immediately, and take necessary action in accordance with the report of the said committee.*

With the directions as aforementioned, the writ petition disposed of giving liberty to the parties to approach this Court for any clarification/s if so required. No costs”

Fluoride mitigation activities:

Government of AP and various agencies like NEERI, NGRI, NGOs and external agencies like Royal Netherlands Embassy have been taken up no. Of initiatives combat the problem of high fluoride concentration in the district. Some of such initiatives are:

Community defluoridation units: GoAP has installed several community defluoridation units for both piped water schemes and the hand pumps under the submission projects funded by RGNDWM, GoI. However, most of these units are not functioning due to lack of capacity,

technical know-how, and commitments from the Gram panchayats. This is due to lack of efforts to build the local capacities in O&M of these schemes and over focus on just installation of schemes. Recently, one of the Gram panchayat (Chout Uppal a Mandal headquarter with urban characteristics) has rehabilitated the CDU (Partially) with an investment of rupees 5.75 lakhs and treated water has been supplied to the communities at free of cost. One of the Community defluoridation unit at yellareddyguda, high fluoride effected village is totally defunct.

Domestic defluoridation units:

Initially GOAP with assistance from GOI, NEERI had launched a program to educate on fluoride and its ill effects. Pilot project was implemented on household treatment of water with precipitation technique using alum and lime. Subsequently Government of AP has distributed more than ten thousand household defluoridation filters (DDFs) with different techniques like Nalgoda technique, prasanthi technique in high fluoride villages in the district. Also many NGOs are active in promoting household domestic filter with either activated alumnae, bone charcoal etc. Though these DDFs have been found effective in bringing down the fluoride content there is no demand from the communities. Communities are not rejuvenating / changing the filters regularly for the following reasons.

- * Communities are not willing to spend money (Rs 20 –50) for the changing/ rejuvenating the filters
- * Time consuming process (DDFs can filter only 4 litres/ hour)
- * Absence of effective service providers for the maintenance of the DDFs
- * Lack of IEC/Motivation/ awareness creation
- * Lack of follow up / monitoring on performance as well as the usage

Roof water harvesting: A local NGO “Sai Oral health foundation” is active in few villages promoting Roof Water Harvesting structures in addition to in addition to providing household domestic defluoridation units. Govt. of AP is also supporting the program partly. Initially roof water harvesting structures were fully subsidised, but later the element of cost sharing been introduced. The communities are very happy with the program as well as the quality of water and gaining the popularity. Some of the limitations are (1) non-existence of suitable roof to harvest water (about 40% of the houses having tailed/thatched roofs) in the villages. There are few instances where the households have changed their roofs to harvest roof water) (2) expensive to have individual structures and (3) the limited rainy season

Transportation of water supply: government of AP, Elected representatives (MLA), few NGOs, are transporting water to some of the villages.

Water markets: There are few private entrepreneurs selling water in the villages transported from safe source/Manjeera (river) water. Also are private treatment plants for purifying water through reverse osmosis and subsequent blending. Treated water is sold at Ps. 50/litre (Rs.10/20 litres can)

R&D activities by National Geophysical Research institute: NGRI is actively involved in fluoride related activities in the district. There is demonstration project to reduce fluoride content in ground water through injecting wells??

Further Govt. of AP has asked the department of medial and health and other agencies to conduct a survey on fluoride affected families> it is proposed to supply household defluoridation units at the subsidised price (90% subsidy for SC/ST, 80% for Below poverty line families and 50% subsidy for general category). Tenders have been called at the state level to fix the prices for the same. Specifications have been fixed in consultation with experts. However, ensuring effective delivery mechanism for regular rejuvenation, involvement of PRIs, awareness building is very critical.

Potential payers and possible roles to combat the problem

- **Art of living (SH coordinators):** could play a major role in creating awareness and building the capacities of the local community based organisation, net working of the village level institutions etc
- **PRI:** Could take the responsibility of O&M of water supply schemes and other fluoride control activities
- **NGOs:** To build the capacities of the communities, GPs, CBO and creating awareness and skills among the communities
- **NRIs:** Could contribute by financing both hardware and soft ware activities including effective delivery mechanism to combat fluoride problem in the district and leverage more funds from different schemes of the government. They could also support NGO participation in the program
- **GOAP/ external support agencies**

Measures to be taken up

- Ground water recharge activities and regulation
- Water quality monitoring and surveillance
- Awareness creation through proper IEC strategy
- Capacity building and effective delivery mechanism
- Strengthening of PRIs
- Integrating different activities related to water resource management and drinking water, with a comprehensive plan with involvement of PRI, NGOs, Private institutions etc.