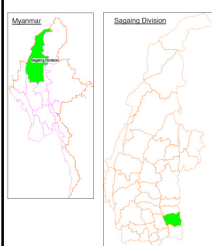


Dental Fluorosis caused by high fluoride contamination in water sources of Wet Let is **public health significance**?????

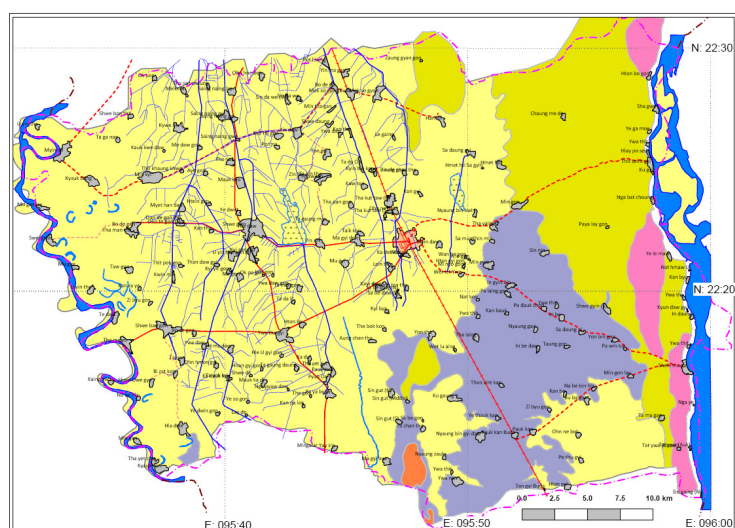
Dr. Kay Khine Aye
Assistant Director
Occupational Health

1

Location Map



- The native place of Ashin Janakabhivamsa
- Made up of 3 wards, 69 village tracts (228 villages)



2

Fluoride Contamination in Water Sources of Wet Let

3

Distribution of tested drinking water sources according to fluoride contents

No	Name of Village	0.00-0.50 mg/l	0.51-1.00 mg/l	1.01-1.50 mg/l	1.51-2.00 mg/l	2.01-2.50 mg/l	2.51-3.00 mg/l	Total
1	Sa-pal-taw	-	-	1	4	7	-	12
2	Tha-yet-gyi	17	31	22	-	-	-	70
3	Khaw-taw	2	1	7	50	-	-	60
4	Sin-kut	-	-	-	7	4	5	16
5	Kone-gyi	-	2	-	1	-	1	4
6	Lein-pin	-	1	3	1	-	-	5
7	Ta-chan-thar	-	2	-	2	-	-	4
8	Mu-gyi	-	9	11	29	1	-	50
9	Han-lin	2	2	15	75	5	-	99
10	Phwint Hlaing	11	8	2	-	-	-	21

Distribution of tested drinking water sources according to fluoride contents

No	Name of Village	0.00-0.50 mg/l	0.51-1.00 mg/l	1.01-1.50 mg/l	1.51-2.00 mg/l	2.01-2.50 mg/l	2.51-3.00 mg/l	Total
11	Pin Zin	4	21	32	19	3	-	79
12	Htein Kan	15	3	2	9	-	-	29
13	Don-tel-kone	21	51	28	27	-	-	127
14	Hnaw-pin	17	42	31	14	-	-	104
15	Ta-nin-thar	7	18	57	18	-	-	100
16	Sar-taung-ni	-	3	-	14	-	-	17
17	Kyee-thi-kone	3	15	46	36	-	-	100
18	Min-su	-	-	-	29	8	4	41
19	Ta-kaung-min	2	9	46	19	-	-	76
20	Sint-par	5	34	59	2	-	-	100

Distribution of tested drinking water sources according to fluoride contents

No	Name of Village	0.00-0.50 mg/l	0.51-1.00 mg/l	1.01-1.50 mg/l	1.51-2.00 mg/l	2.01-2.50 mg/l	2.51-3.00 mg/l	Total
	Total	106	252	362	356	28	10	1114
		720 (65%)			394 (35%)			

Distribution of tested drinking water sources according to types and fluoride contents

No	Name of the village	Less than or equal to 1.5 mg/l					More than 1.5 mg/l					Total
		DW	STW	DTW	P/L	Total	DW	STW	DTW	P/L	Total	
1	Sa-pal-taw	-	-	-	1	1	-	11	-	-	11	12
2	Tha-yet-gyi	-	70	-	-	70	-	-	-	-	-	70
3	Khaw-taw	6	3	-	1	10	30	20	-	-	50	60
4	Sin-kut	-	-	-	-	-	-	-	16	-	16	16
5	Kone-gyi	-	-	-	2	2	-	-	2	-	2	4
6	Lein-pin	-	-	-	4	4	-	-	1	-	1	5
7	Ta-chan-thar	-	-	-	2	2	2	-	-	-	2	4
8	Mu-gyi	8	7	-	5	20	17	13	-	-	30	50
9	Han-lin	7	10	2	-	19	42	38	-	-	80	99
10	Phwint Hlaing	-	-	11	10	21	-	-	-	-	-	21

Distribution of tested drinking water sources according to types and fluoride contents

No	Name of the village	Less than or equal to 1.5 mg/l					More than 1.5 mg/l					Total
		DW	STW	DTW	P/L	Total	DW	STW	DTW	P/L	Total	
11	Pin Zin	13	40	-	4	57	15	7	-	-	22	79
12	Htein Kan	1	18	-	1	20	-	9	-	-	9	29
13	Don-tel-kone	9	91	-	-	100	1	25	1	-	27	127
14	Hnaw-pin	22	67	-	1	90	13	1	-	-	14	104
15	Ta-nin-thar	16	65	-	1	82	13	5	-	-	18	100
16	Sar-taung-ni	-	2	-	1	3	9	3	2	-	14	17
17	Kyee-thi-kone	21	42	-	1	64	16	19	-	1	36	100
18	Min-su	-	-	-	-	-	3	25	13	-	41	41
19	Ta-kaung-min	33	23	-	1	57	18	1	-	-	19	76
20	Sint-par	5	92	-	1	98	2	-	-	-	2	100

No	Type of water source	≤ 1.5 mg/l	> 1.5 mg/l
1	Dug well	141 (43.79%)	181 (56.21%)
2	Shallow tube well	530 (74.96%)	177 (25.04%)
3	Deep tube well	13 (27.08%)	35 (72.92%)
4	Pond/Lake	36 (97.30%)	1 (2.70%)
Total		720 (64.64%)	394 (35.36%)











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Fluoride content vs. Dental Fluorosis cases

Sr.	Village Tract	Village	Tested Sample	1.51 - 2.0	2.01 - 2.5	>2.5	% >1.5	DF-1-4	DF->4	Total
1	Yae Htwet	Dun Te Kone (South)	58	9			15.52	2		12
2	Yae Htwet	Dun Te Kone (North)	69	18			26.09			
3	Ta Gaung Min	Ta Gaung Min	76	19			25.00	2	1	3
4	Ta Kaung Min	Hnaw Pin	104	14			13.46	2		2
5	Sint Bar	Sint Bar	100	2			2.00	3		4
6	Kyay Thee Kone	Kyay Thee Kone	100	36			36.00		1	3
7	Yae Htwet	Htein Kan	29	9			31.03	2	2	4
8	Hput Hlaing	Hput Hlaing	21				0.00	1		1
9	Lein Pin	Lein Pin	5	1			20.00			
10	Khaw Taw	Khaw Taw	60	50			83.33	3		4
11	Khaw Taw	Sa Bai Taw (North)	12	4	7		91.67			
12	Sin Kut	Sin Kut (North)	14	7	4	3	100.00	6		9
13	Ta Chan Thar	Ta Chan Thar	4	2			50.00	1		1
14	Tha Khut Taw	Kone Gyi	4	1		1	50.00		5	5
15	Ha Lin	Han Lin	99	75	5		80.81	12	9	22
16	Inn Be	Sar Taung Ni	17	14			82.35	4		4
17	Mu Gyi	Mu Gyi	50	29	1		60.00	6		6
18	Pin Zin	Pin Zin	79	19	3		27.85	11	3	15
19	Tha Yet Gyi	Tha Yet Gyi (East)	37	1			2.70	1		11
20	Tha Yet Gyi	Tha Yet Gyi (West)	35				0.00			
21	Ta nin thar	Ta nin thar	100	18			18.00	2		2
22	Myin taw	Min su	41	29	8	4	100.00	1	4	5
	Total		1114	357	28	8		59	25	10113

Conditions of Dental Fluorosis in Wet Let

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Score	criteria		
0	Normal translucency of enamel		
1	Narrow white lines corresponding to the perikymata		
2	<i>Smooth surfaces:</i> More pronounced lines of opacity <i>Occlusal surfaces:</i> Scattered areas of opacity <2 mm in diameter		
3	<i>Smooth surfaces:</i> Merging and irregular cloudy areas of opacity <i>Occlusal surfaces:</i> Confluent areas of marked opacity		
4	<i>Smooth surfaces/Occlusal surfaces:</i> The entire surface exhibits marked opacity or appears chalky white		
5	Entire surface displays marked opacity with focal loss of enamel (pits) <2 mm in diameter		
6	Pits are regularly arranged in horizontal bands <2 mm and marked attrition		
7	irregular areas involving <1/2 of entire surface		
8	Loss of outermost enamel involving >1/2 of surface		
9	Loss of main part of enamel with change in anatomic appearance of surface		

Prevalence and severity of Dental Fluorosis conditions among sampled students, measured according to the highest TFI score in their dentations, (N=702)

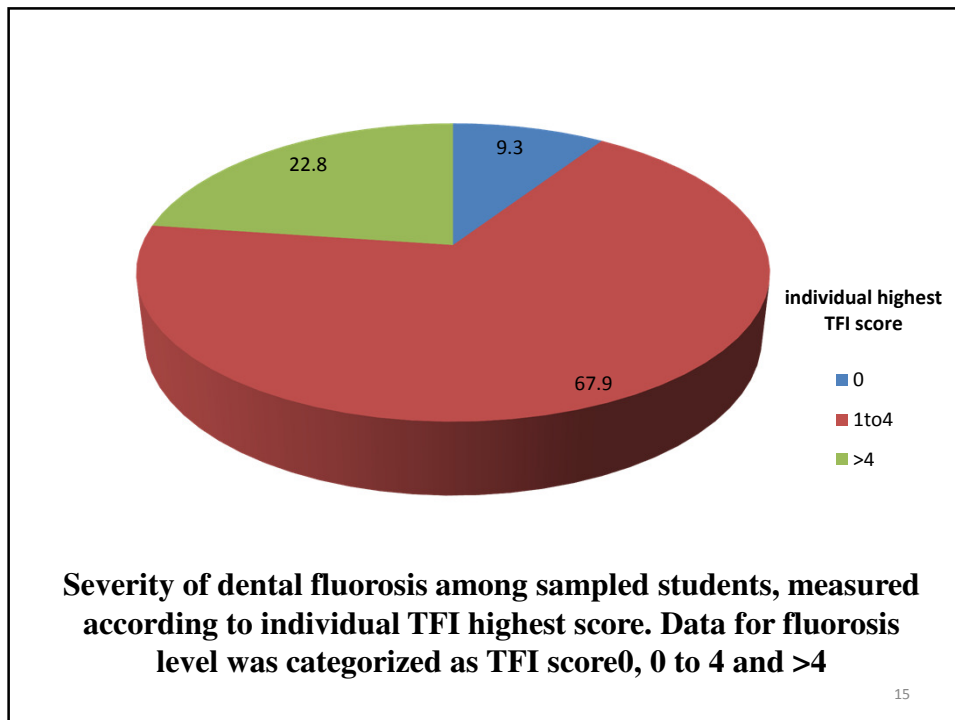
Variable	Category	n	%
Prevalence of dental fluorosis	without fluorosis(TFI=0)	65	9.3
	with fluorosis	637	90.7

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Severity of Dental Fluorosis conditions among sampled students, measured according to the highest TFI score in their dentations, (N=702)

Severity of dental Fluorosis	n	%
0	65	9.3
1	64	9.2
2	82	11.7
3	243	34.6
4	88	12.5
5	52	7.4
6	31	4.4
7	38	5.4
8	31	4.4
9	8	1.1

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Smiling?

- most of the subjects can smile freely at public places
- about one third of sampled students with TFI >4 (35%) cover their mouth while smiling

Lack of confidence and hindered smiling due to dental fluorosis was high among those who exhibited more severe dental fluorosis (TFI>4)

Felt upset?

- 43% of students with TFI>4, 13% of students with TFI 1 to 4 and 6.2% normal students felt upset for their teeth
- most response the color of teeth (78.2%)
 - 9.4% orthodontic problem
 - 8.4% toothache
 - 3.7% more than one of above reasons

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Discontent with the color of teeth?

- 76.8% of sampled students \implies dissatisfied with the color of their teeth
- Among students who were discontent with the way their teeth looked, 98.9% wanted treatment to improve their color of teeth
- The responses had indicated their perception to have an aesthetic correction

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Mitigation Plan

- Comprehensive Health Education and Health Promotion in the Wet Let community and advocacy to the local and regional authority
- Management of Dental Fluorosis to reduce the psycho-social impacts of children and motivate to use of fluoride free water for drinking and cooking purpose
- Alternative water sources in High risk areas

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THANK YOU

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