

BANGALOREBLAZE GIRLS' HIGH SCHOOL

LAKE 2014

Project on ; BOREWELL WATER QUALITY

**Study area- 1km – 6 km around
Vrushabhavathi River**

Samples collected and

Tested for – Nitrates, nitrites and ammonia

NICE
CHEMICALS,
EDAPPALLY,
KOCHI,
KERALA

By

Sanjana V Kale (x), Esha R (x) and Prateeksha (IX),

Bangaloreblaze Girls' High School, Nagarbhavi, Bangalore.

PH-o8o-23185252

INTRODUCTION

✦ Vrishabhavathi river/stream originates in the industrial suburbs of Peenya, Bangalore. It flows through the south western part of Bangalore and flows further south to join Suvarnamukhi river which intern joins Arkhavathi river, a tributary of river Cauvery which is one of the most famous river of south India. Due to urbanization this stream has turned into sewage stream and some places it has even vanished..

The present Vrishabhavati



30 06 2014

Vrishabhavati after 10 years....



This is what we did



MAP OF STUDY AREA



Questionnaire :

Area & House number:

- Name of the resident:
- Educational background:
- No. of members in the family:
- Residing in the area since _____ months/years
- Reason for shifting to the present address is- water scarcity in previous place / job / personal
- Have bore well / well / others as water source for drinking
- Have bore well/ well / others as water source for bathing
- Well unusable since _____ months / years
- Reason for not using well:
- Changes observed in colour / taste / smell-(specify)
- Water related illness (if any):
- Water supply available 24 hours: Yes/no
- Well / bore well / tank / pond/ river as source of water for cooking.
- Have terrace garden: yes/no
- Have vegetable garden: yes/no

- Rainwater harvesting/ bore well recharge done:
- Have noticed the increase in a particular type of insect: yes/no
- If yes, specify:
- Have noticed the increase in a particular type of plant: yes/no
- If yes, specify:
- Was /is depending on the river water for agriculture
- No.of trees in the premise:
- No of trees outside the premise :
- Kind of trees abundant:
- Type of birds spotted:
- Located more cats / dogs / in the location
- No. of industries / factories in the vicinity: _____ (specify)
- Distance from Vrushabhavathi river: _____ m/km
- Any kind of mental illness/congenital disorder reported: yes / no
- Water sample collected with specimen number: yes/no. If yes, specimen number _____

Signature of the resident:

✘ Procedure for testing

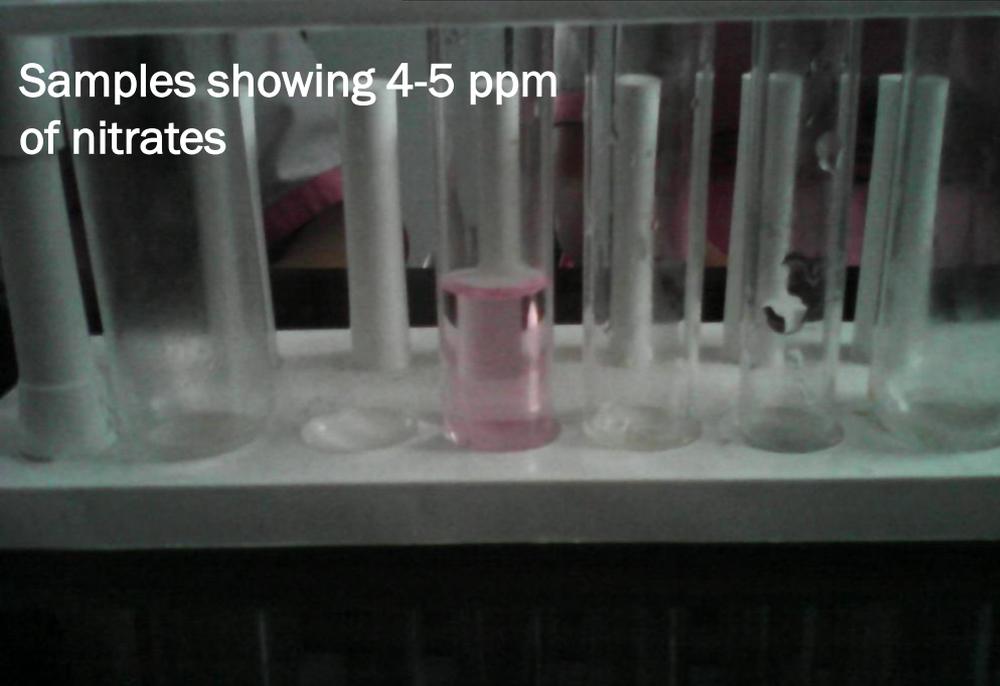
Nitrate	Nitrite	Ammonia
<p>10ml of water sample+a pinch of nitrate reagent 1 (NA1)</p> <p>Decant the supernatant solution (5 ml) and add 3 drops of nitrate reagent2 (NA2)</p> <p>Observe the colour change</p>	<p>5ml of water sample +3 drops of nitrite reagent 1 (NI 1).</p> <p>Observe the colour change</p>	<p>5ml of water sample + 5 drops of ammonium reagent1 (NH1)</p> <p>Observe the colour change</p>



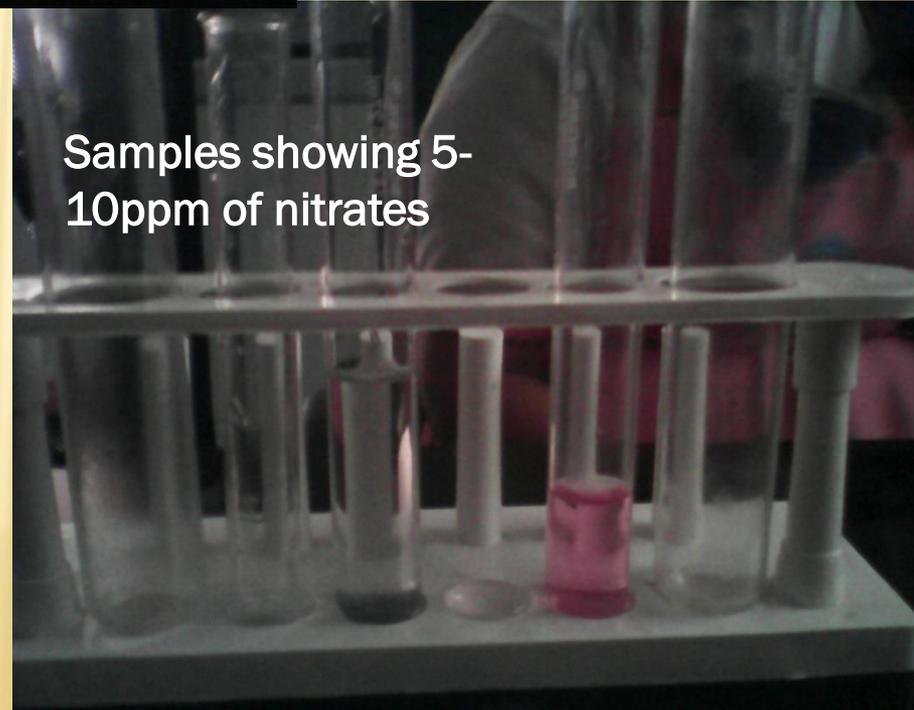
Samples showing above 10ppm of nitrates



Samples showing 4-5 ppm of nitrates



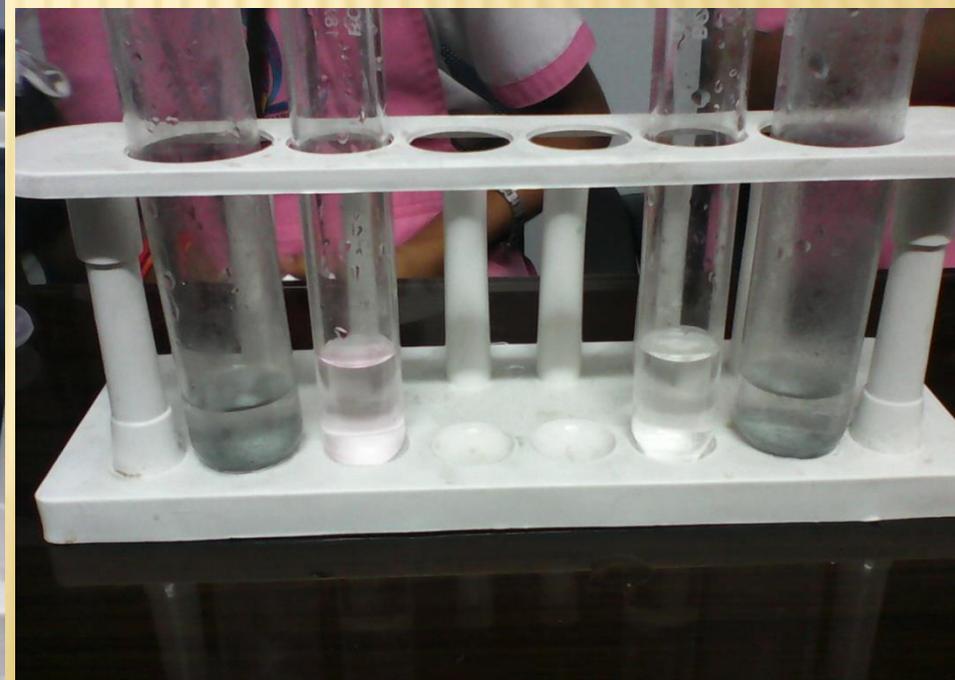
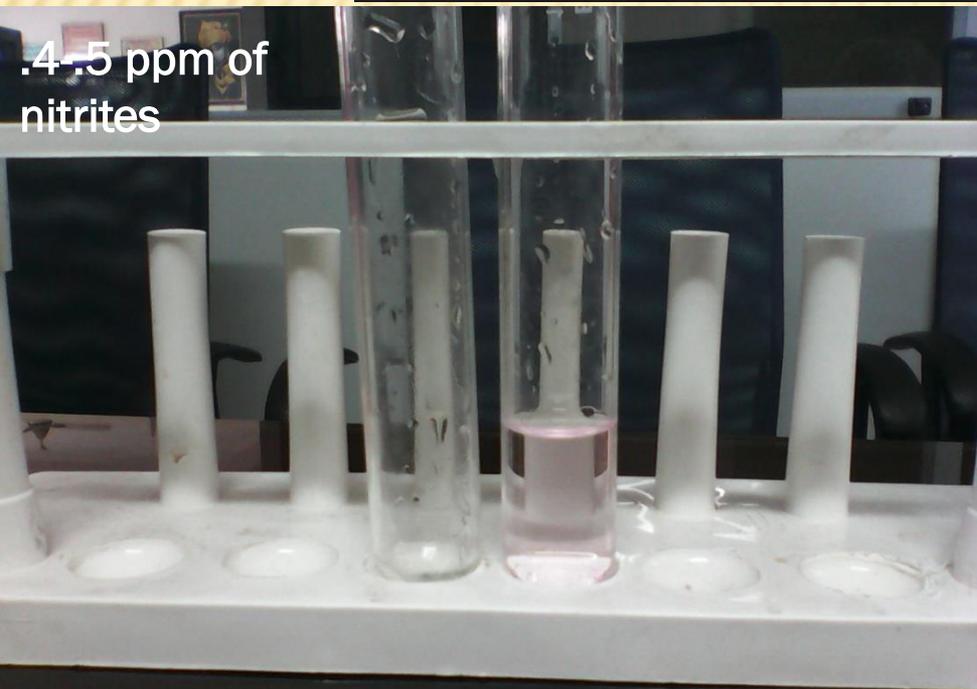
Samples showing 5-10ppm of nitrates



.1-.3 ppm of nitrites



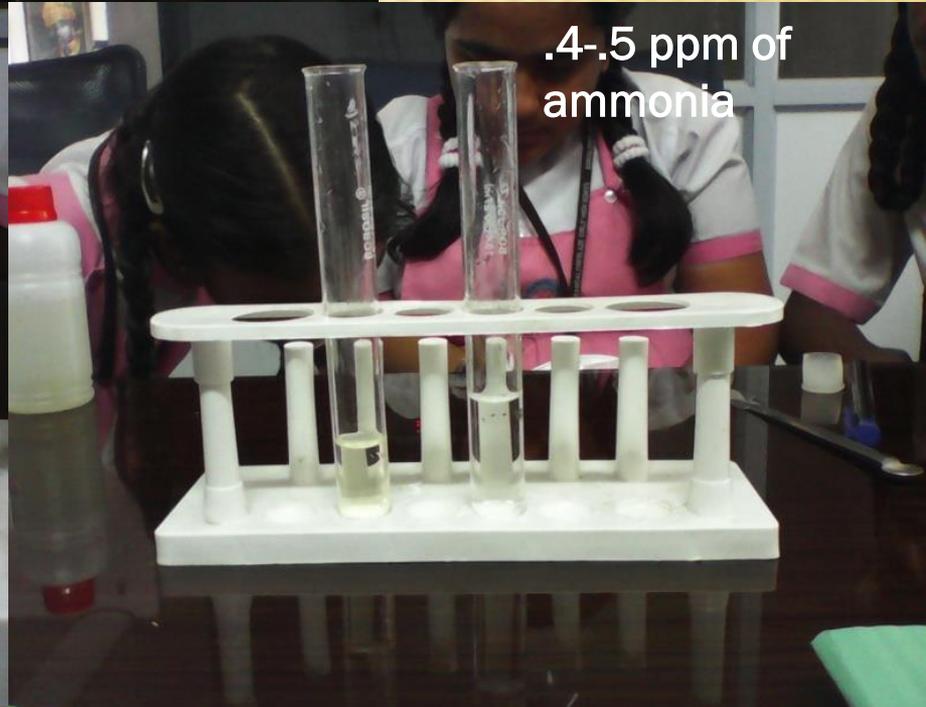
.4-.5 ppm of nitrites



.1-.3 ppm of ammonia



.4-.5 ppm of ammonia



Sample no.	Nitrates(in ppm)	Nitrites (in ppm)	Ammonia (in ppm)
3	4-5	.1-3	.1-3
20	4-5	.1-3	.1-3
24	4-5	.1-3	.1-3
29	4-5	.4-5	.1-3
50	4-5	.4-5	.1-3
63	4-5	.1-3	.4-5
143	20-25	.1-3	.1-3
350	10-12	.4-5	.1-3
403	0-3	.1-3	.1-3
429	4-5	.1-3	.1-3
450	4-5	.1-3	.1-3
479	4-5	.1-3	.1-3
603	4-5	.1-3	.4-5

T e s t r e s u l t s

DISTANCE 3-5 KM- BOREWELL

Sample no.	Nitrates(in ppm)	Nitrites (in ppm)	Ammonia (in ppm)
6	4-5	.4-5	.1-3
7	15-20	.4-5	.1-3
49	4-5	.1-3	.1-3
687	10-12	.4-5	.1-3

CAUVERY WATER

Sample no.	Nitrates(in ppm)	Nitrites (in ppm)	Ammonia (in ppm)
1	0 ppm	0ppm	0ppm
2	2ppm	.1ppm	.1ppm
3	0ppm	0ppm	0ppm
4	3ppm	.1ppm	.2ppm

Health Hazards

Nitrates	Nitrites	Ammonia
Formation of methemoglobin in blood affecting the oxygen carrying capacity. Causes blue baby syndrome in infants	Formation of methemoglobin in blood	Hinders disinfection of water by chlorination.
Causes		
Municipal and industrial wastewaters, refuse dumps, animal feed lots, and septic systems	Runoff from fertilizer use; leaching from septic tanks, sewage; and erosion of natural deposits.	Runoff in agricultural areas where it is applied as fertilizer and it easily finds its way into underground aquifers from animal feedlot runoff
Preventive measures		
Blocking the entry of fertilizers, sewage and industrial waste into the river.		

Observation

Difference in colour of water-

Difference in taste

Increase in a particular insect- mosquitoes and cockroaches (an indication of unhygienic surroundings)

Lack of respect to law (only 5 out of the 17 houses had done borewell recharging)

Sites being converted into dump yards

Increase in scavenger birds- an indication of unhygienic surroundings

Only 6 houses had vegetable garden



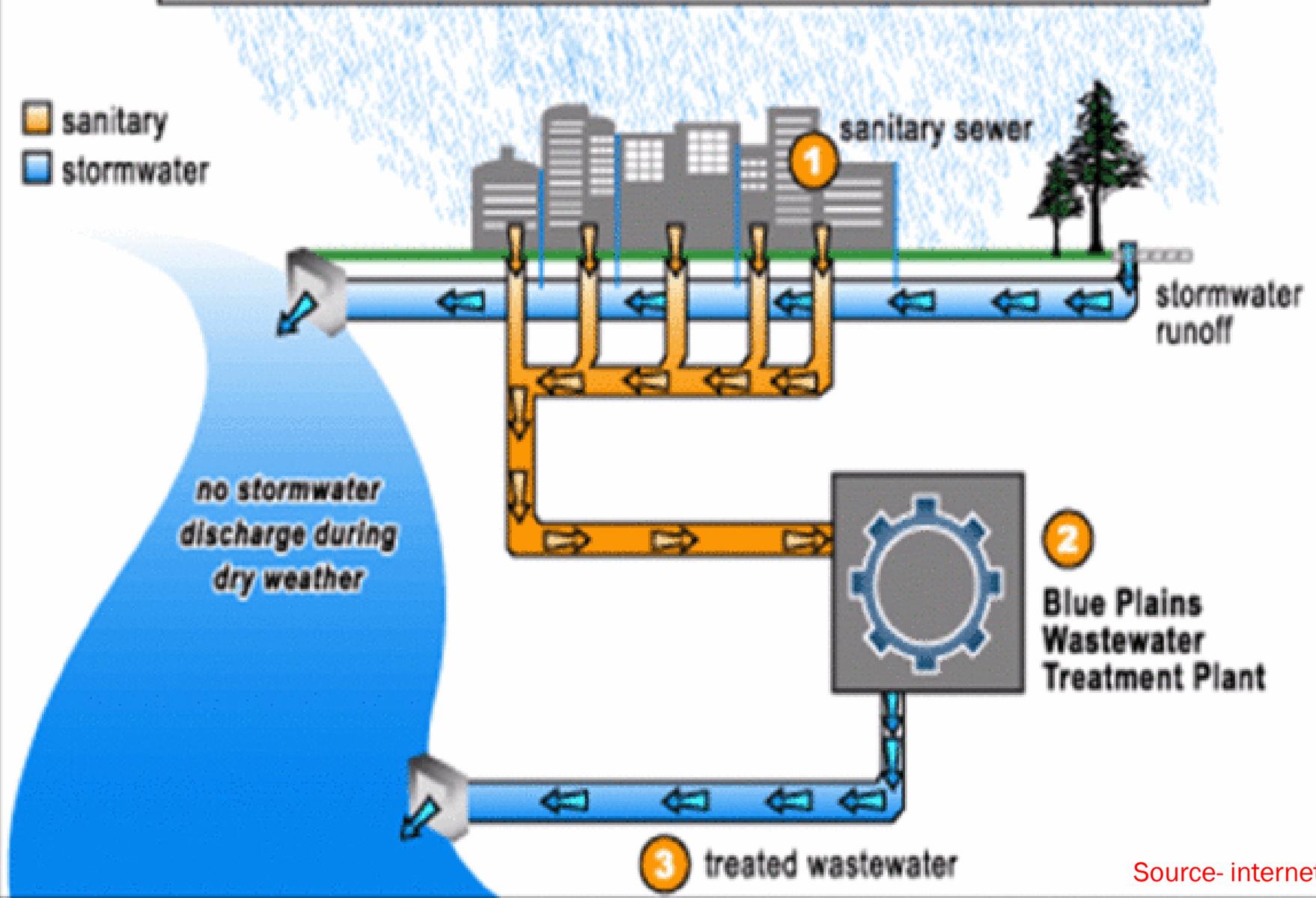
✘ The principal cause

Sewage release



SEPARATE SANITARY & STORMWATER SEWER SYSTEMS

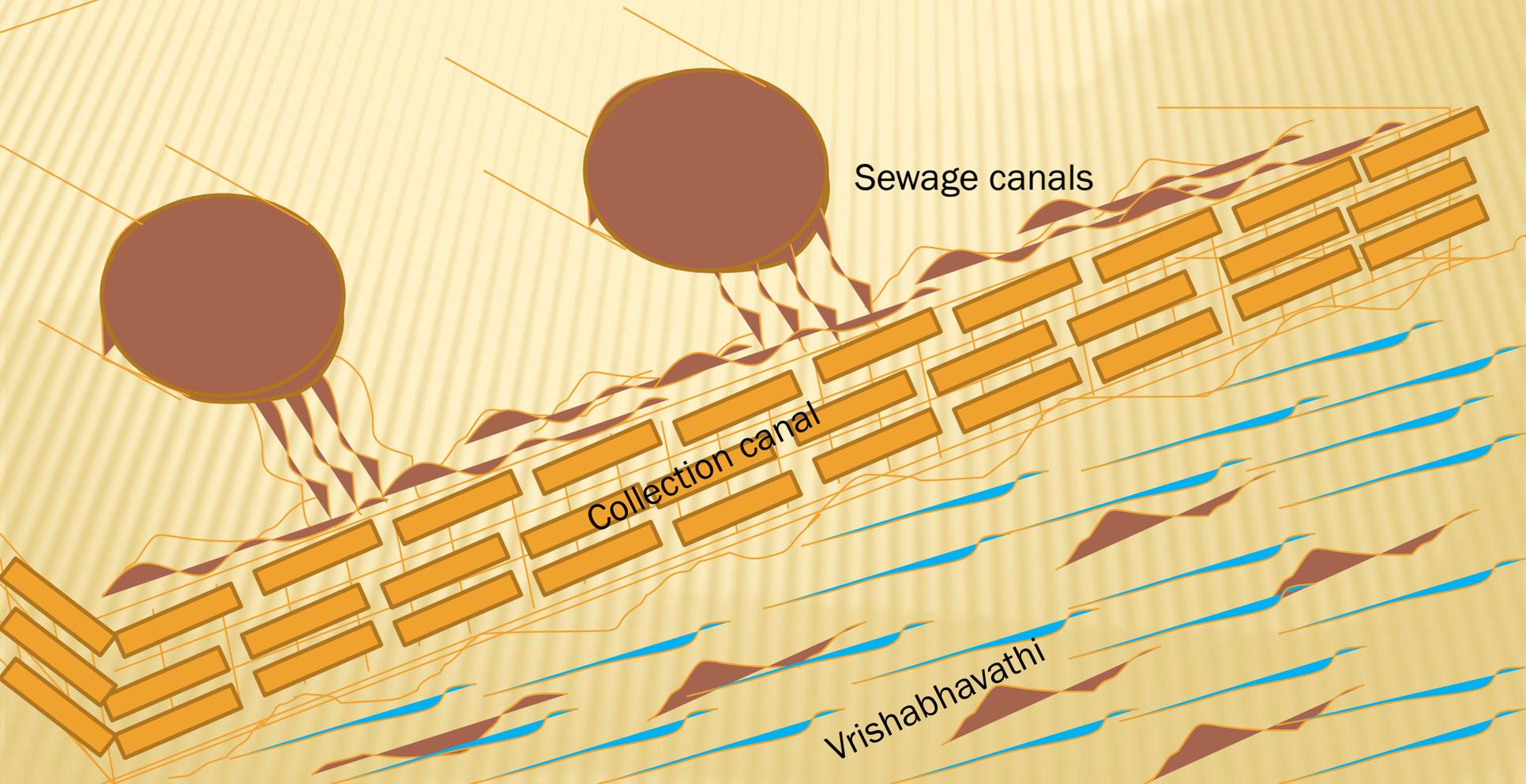
- sanitary
- stormwater



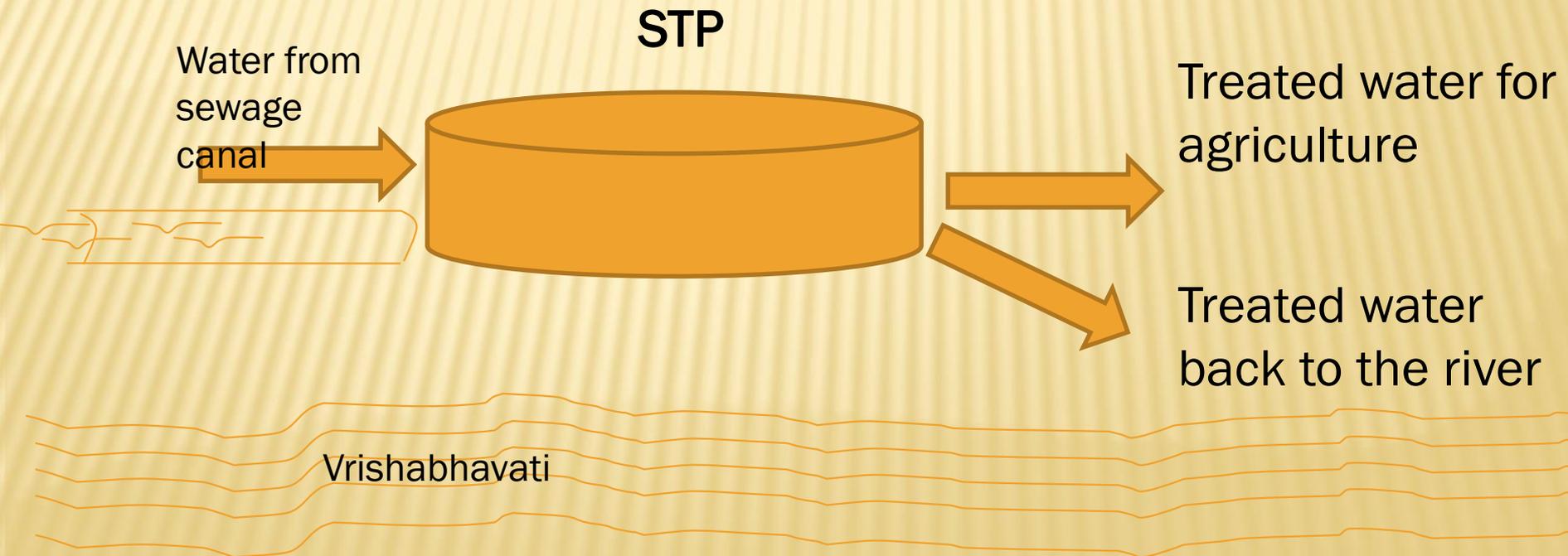
**WE DO NOT WANT A BLAME GAME. NOR WE ARE
HERE TO ANALYZE HOW MUCH IS TOO MUCH. WE
JUST WANT OUR PRIDE AND RIGHTS BACK.
SO, HERE ARE THE SUGGESTIONS**

Step no. 1

Construct a collection canal parallel to the drainage canal without digging or disturbing the system



**RELEASE A PORTION OF THE TREATED WATER FROM THE PLANT
BACK INTO THE RIVER TO MAINTAIN FLOW AND THE OTHER
PORTION TO BE MADE AVAILABLE FOR AGRICULTURE IN
RAMANAGARA SIDE**



AS STUDENTS, WE ARE DOING:-
ECO CLUB ACTIVITIES

SPREADING AWARENESS ABOUT EACH ONE GROW ONE PROGRAMME



✘ # MAINTAINING VEGETABLE GARDEN IN THE SCHOOL



**# SPREADING AWARENESS ABOUT WASTE
SEGREGATION AT SOURCE (DRY AND WET WASTE)**

We are trying to do our bit to keep the environment clean. If, the skilled engineers, town planning committee and the BWSSB come together , surely we all can see the Vrushabhavathi smiling once again.....

Thank you.

By
Sanjana V Kale (x), **Esha R** (x) and
Prateeksha (IX), Bangaloreblaze Girls' High
School, Nagarbhavi, Bangalore.

PH-o8o-23185252

Ref. Books, Wikipedia, and
google map