

# RR 2.0 DATASHEET\*

*\*Developed based on GEC's 15 years' experience on community based water quality monitoring.*

Name:

Contact Number:

Email:

School/Organization:

Number of People:  Date/Time:   
(data collection)

State:

Location (site area):

River's Name:

Section:  Upstream  Midstream  Downstream

River Basin's Name:

Weather:   
(Cloudy, sunny, etc.)

Has it rained in the past 24 hours? Was it heavy?

## River Address



### Do you know your River Basin?

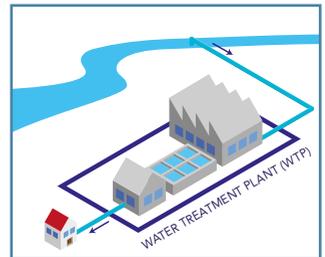
Using a map, locate the drain or river nearby. Identify the flow of the water into the nearest river to the sea.

ANSWER



### Do you know where your drinking /tap water comes from?

Knowing where your local water supplies will help you to know any possible threats water supplies face and steps that you could undertake to protect your water supplies. Also know what your community is doing to protect your water supply. Help others to be aware on the importance of clean water in your community.

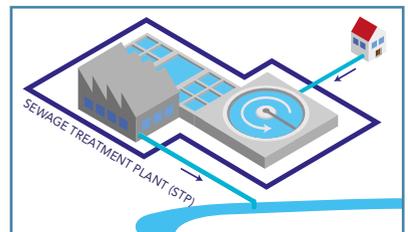


ANSWER



### Find out where your wastewater goes to

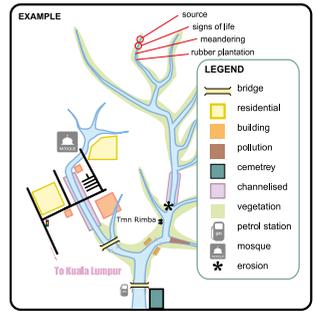
Wastewater treatment removes the suspended solid from the wastewater before it can be discharged to the river safely. Identify your wastewater treatment plant nearby your area and get to know which river the discharge goes to.



ANSWER

# River Map

Draw your area map here and record the land use. Create a legend to identify the different types of land use and other points of interest.



# River Hydrology

DISTANCE (A):			
T1	T2	T3	AVERAGE TIME (B)
AVERAGE VELOCITY (C) = A ÷ B			
=			

W 1	W 2	W 3	AVERAGE RIVER WIDTH (D)

D1	D2	D3	AVERAGE RIVER DEPTH (E)

DISCHARGE RATE  
 = (RIVER WIDTH  
 x AVERAGE DEPTH)  
 x AVERAGE VELOCITY

= (D x E) x C

= DISCHARGE RATE

# Physical Monitoring\* (PM) \*Developed based on GEC's 15 years' experience on community based water quality monitoring.

Observe, identify and score based on the 9 categories below:

## Category 1: Voice of the stream

- 0-2 No natural voice, Stagnant water
- 3-5 Some sound of nature (including animals), Slow moving water
- 6-8 Sound of nature especially water, Good flowing water
- 9-10 Sound of water (bubbling etc.), Natural flow

C1 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 8-10

## Category 2: Land use

- 0-2 Urbanized city centre, fully developed
- 3-5 Industrial, agriculture, wetmarket, workshop, food court area, commercial
- 6-8 Residential, recreational area and minimal commercial
- 9-10 Very minimal human activities, forest reserve, protected catchment

C2 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 3: Rubbish

- 0-2 Fully covered with floatable rubbish (plastics, bottles, cans, food packaging)
- 3-5 Significant amount of human made rubbish,
- 6-8 Mixture of man made waste and organic waste (leaves, twigs and branches)
- 9-10 Natural leaves and twigs, insignificant floatables

C3 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 4: Pipes & drains

- 0-2 Direct effluent discharge pipes from the industries, wetmarket, foodcourts, sewage treatment plant and other form of pollution
- 3-5 Discharge from treated pipes into the stream, sullage water discharge
- 6-8 Urban storm water, drainage system
- 9-10 No pipes or drains

C4 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 5: Structures/modifications

- 0-2 More than 3 structures/modifications that have negative impact on water flow or quality.
- 3-5 1 or 2 structures/modifications that have negative impact on water flow or quality.
- 6-8 Structures/modifications that have good impact on water flow or quality.
- 9-10 No structure/modifications (natural flow conditions)

C5 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 6: Smell

- 0-2 Very strong unnatural smell (Sewage, Chemical etc.)
- 3-5 Strong unnatural smell (Sewage, Chemical etc.)
- 6-8 Slight unnatural smell (Sewage, Chemical etc.)
- 9-10 No smell, Natural Smell.

C6 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 7: Water conditions

Please take note the discharge points (point source & non-point source) to the river that causes the change in conditions

- 0-2 Turbid, muddy or silted which is brownish in colour, greenish or milky (indicate the colour is due to pollution)
- 3-5 Greenish/blackish colour with scum and floatable particles, oily sheen, foamy
- 6-8 Green floatable vegetation, algae
- 9-10 Colourless

C7 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 8: Vegetation

Look at the river and banks and check if the wetland plants are introduced or natural. Check whether erosion occurs or not.

- 0-2 Erosion or land clearing,
- 3-5 Modified river bank landscape with introduced species.
- 6-8 Modified river bank landscape with local species and some wetland plants within river.
- 9-10 Mainly natural vegetation on river bank and wetland plants within river.

C8 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

## Category 9: Vertebrate animal life

(birds\*, reptiles, fish, amphibians & mammals)

\* Using bird books, learn the names of the birds found around the site and compile a list.

- 0-2 NO animal life visible at all.
- 3-5 At least 2 types of animal life.
- 6-8 At least 3 types of animal life.
- 9-10 More than 3 types of animal life found.

C9 SCORE	WITHIN BEST SCORE (Y/N)

Best score: 9-10

NO. OF YES  
(BEST SCORE)

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# Calculating Physical Monitoring Index

NO. OF YES (BEST SCORE)	PM INDEX	WATER QUALITY	MOUTH GUIDE SCORE
9	5	Excellent	
7 to 8	4	Good	
4 to 6	3	Average	
2 to 3	2	Poor	
0 to 1	1	Very poor	



# Chemical Monitoring (CM)

Record your results from the Water Quality Test Kit here.

PARAMETER	SITE 1	BEST SCORE	WITHIN BEST SCORE (Y/N)	NO. OF YES (BEST SCORE)
pH		6-8		
Dissolved Oxygen (ppm)		4/8		
Phosphate (ppm)		1		
Nitrate (ppm)		5		
Turbidity (JTU)		0		
Temperature (°C)		N/A*	N/A*	

\*Not applicable as its optimal temperature varies.

# Calculating Chemical Monitoring Index

NO. OF YES (BEST SCORE)	CM INDEX	WATER QUALITY	MOUTH GUIDE SCORE
5	5	Excellent	
4	4	Good	
3	3	Average	
2	2	Poor	
0 to 1	1	Very poor	



# Biological Monitoring (BM): BWQI

Identify and record the organisms found here. Refer **page 25** for the score.

	SPECIES (A)	SCORE	TOTAL SCORE (B)	BWQI (B ÷ A)
SITE 1				

## Calculating Biological Monitoring Index (BWQI)

BWQI RANGE	BM INDEX	WATER QUALITY	MOUTH GUIDE SCORE
7.6-10	5	Very clean water	
5.1-7.5	4	Clean water	
2.6-5.0	3	Average	
1.0-2.5	2	Dirty water	
0-0.9	1	Very dirty water	

**BM INDEX**



## River Ranger Index\* (RRI) \*Developed based on GEC's 15 years' experience on community based water quality monitoring.

Calculate the river's health by using River Ranger Index

CATEGORY	INDEX (A)	WEIGHT (B)	SUB-CATEGORICAL INDEX ((A/5) X B)
<b>PHYSICAL (C)</b>		1.75	
<b>CHEMICAL (D)</b>		1.25	
<b>BIOLOGICAL (E)</b>		2	
<b>RIVER RANGER INDEX (C + D + E)</b>			

RIVER RANGER INDEX (RRI)	CLASS*	RIVER STATUS	MOUTH GUIDE SCORE
4.55 - 5.00	A	Very good	
3.55 - 4.54	B	Good	
2.55 - 3.54	C	Moderate	
1.55 - 2.54	D	Poor	
1.00 - 1.54	E	Critical	

*\*this is different from DOE Malaysia river classes*

## Your River Health is

RIVER RANGER INDEX (RRI)	CLASS	RIVER STATUS	MOUTH GUIDE SCORE
			