



RIVER FISH MONITORING

— Dr. K. K. Hemalatha

Submitted to



Kerala State Biodiversity Board

FISH MONITORING SURVEY OF

BHARATHAPUZHA UPPER CATCHMENT AREA, KERALA

TRIBUTARIES

- I) CHITTURPUZHA**
- 2) GAYATHRIPUZHA**
- 3) KALPATHYPUZHA**

DR. K K HEMALATHA

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Ottapalam-3

Submitted to

**Kerala State Biodiversity Board,
Thiruvananthapuram**

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Study Team

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2 Members:

- (i) **Dr. R Rajkumar,**
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Wild Life Cooradinator, South India Chapter.
- (iii) **Sri. Sreejith,**
PG Student,
Govt. Victoria College, Palakkad.

3 Names of fishermen:

Sri M. Krishnan
Sri K. Krishnan

Study period and localities:

Pre-monsoon Survey conducted in **May 2010**.

Dates: **24.05.10, 25.05.10, 26.05 10 and 27.05.2010.**

Locations. Chitturpuzha - Kunnamkattupathy	- Upper site
- Puzhappalam	-Middle site
- Parli	- Lower site
Gayathripuzha - Seetharkundu	- Upper site
- Oottara	- Middle site
- Mayannur	- Lower site
Kalpathypuzha –Kadukkamkunnupathy	- Upper site
- Kalpathy	- Middle site
- Parlippalam	- Lower site

Conducted survey in the three major tributaries of Bharathapuzha Upper Catchment area, for the pre-monsoon period, in the month of **May, 2010**. In **Chitturpuzha, Kalpathypuzha and Gayathripuzha**, the study sites are accessible by Jeep except Seetharkundu of Gayathripuzha which is the highest site, and is accessible only by four wheel drive jeep and then more than five kms walk. This was the deepest and the purest collection site. Full of rocks and Boulders and we could not see the river bed due to depth and the assessed depth is 30feet. We could collect fish from the comparatively valley region of the site.

Introduction

The **Bharathappuzha**, the second longest river in Kerala, is the lifeline of many cities and villages. For the first 40 km or so, the Bharathappuzha follows an almost northerly course till Pollachi. A little more than two-thirds of this area (4400 km^2) is within Kerala and the remaining area (1786 km^2) is in Tamil Nadu. Though Bharathapuzha has a large basin, the water flow is relatively less compared to other long rivers in Kerala because a large portion of the basin is located in the comparatively drier regions (Tamil Nadu and Palakkad Gap). The river is the Nile of Kerala and has the name Nila also. Its main tributaries are Chitturppuzha, Kalpathypuzha, Gayatahrippuzha and Thoothappuzha.

Chitturppuzha starts from Moolathara Dam where water reaches from many streams of Parambikulam and Aaliyar of Tamilnad. Flows through Moolathara, para, Kambalathara, Mullanthode, Chittur, Kodumbu, Kannadi, Parli and joins to Bharathapuzha. Chitturpuzha or Kannadipuzha has Palar, Aliyar, Uppar as its tributaries. In Chittur this river is known as Sokanaasini and in Kannadi it is known as Kannadipuzha. It irrigates above 65kms in Palakkad.

The Kalpathipuzha originates in the upper slopes of the Western Ghats deep inside Palakkad district from the place called Chenthamarakulam in the hills, north of Walayar. It is formed from the confluence of four streams, namely Malampuzha, Walayar, Korayar and Varattar. The Malampuzha Dam is built across this river just before it enters into Palakkad town. The river is named after the **Kalpathi Siva temple** in Palakkad town and formed after the union of Korayar from Anamalai and Malampuzha at Kadukkamkunnu region.

Gayathripuzha is one of the main tributaries of the Bharathapuzha. It originates from Anaimalai hills, passes through Kollengode, Nenmara, Alathur, Wadakanchery and Pazhayannur before joining to Bharathapuzha at Mayannur. Gayathripuzha has Mangalam river, Ayalurpuzha, Vandazhipuzha, Meenkarappuzha, and Chulliyar as its tributaries.

One of the problems faced by Kalpathypuzha, like most of the other rivers in Kerala, is illegal sand mining. This has left many pits in the river bed which lead to shrub growth. During summer the river is covered by a green carpet of Water Hyacinth (Perari local name) and other shrubs. The river is getting deeper by sand removal, there is saltwater intrusion even in the upper reaches construction of a number of dams after independence has also reduced the river flow. In fact in the summer months, there is almost no flow in most parts of the river, only with small ditches. The freshwater discharge from the river has been decreasing continuously. While the river of the river.

All the three tributaries of Bharathapuzha are facing the same problems related to the river structure, but the scenario is severe in Kalpathypuzha where the vegetation and sand mining are in its extreme level.

Methods:

As the depth was very low and the river bed was laden with pebbles, gravel, mud or silt collection was difficult in many of the cases. In addition to the nets supplied by the KSBB, cast net and mosquito nets were also used.

Collections were made from different regions along the river using gill net and cast net. At very shallow regions nylon mosquito net was also used. The main collections were done from the pools like regions of the river and also from occasional, pits of sand mining.

After counting, the fishes were released back to the river, after preserving a few samples for identification.

Water quality was analysed using the Water Quality Test Kit provided by the KSBB.

Scoping study was conducted on 20th May, 2010

Observations:



ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET I

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low tanks)

Name of the River:	CHITTUR PUZHA, Tributary of Bharathapuzha	
Name of survey site:	Kunnamkattupathy	District and Panchayat:
Lower/Middle/Upper	✓ Palakkad Dist, Perumathura panchayat, Chittur.	
GPS Routing (Lat. and Long.) (Optional)	Name of Team Leader:	
Date: 24. 05. 2010	Dr. K. M. HEMALATHA	
		Time: 01. Pm

N.B. For each mark in appropriate option, Enter the respective option number in response field above.

A. WEATHER CONDITIONS	(1) Sunny ✓ (2) Cloudy (3) Rainy Temperature (Atmosphere): 39 °C Has there been rain in the last 7 days: (1) No ✓ (2) Yes
B. STREAM CHARACTERIZATION	Stream nature: (1) Permanent ✓ (2) Ephemeral but water will be seen throughout in water ditches in the area Stream type: (1) I (2) II (3) III ✓ (4) IV (5) V (6) VI none Stream origin: (1) Mountain ✓ (2) Lagoon area (3) Swamp (4) Sacred groves
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: (1) Forest (2) Grass land (3) Agriculture ✓ (4) Plantation ✓ (5) Tribal settlements ✓ (6) Human habitation ✓ (7) Townships (8) Industrial area ✓ (9) Others (Specify) Lower Watershed Nonpoint Source Pollution: (0) No evidence (1) Some pollution sources (2) Obvious sources ✓ Lower Watershed Erosion: (0) None (1) Moderate ✓ (2) Heavy
D. RIPARIAN VEGETATION	(1) Trees ✓ (2) Shrubs ✓ (3) Herbs ✓ (4) Grasses ✓ (*) Others (Specify) Twines (5) Forest plantations (6) Agricultural plantations ✓ (7) Mixed agriculture ✓ (8) No vegetation



E. INSTREAM FEATURES	<p>Rock length (m): 200 m</p> <p>Stream width (m): 150 m</p> <p>Sampling reach area (m^2): 300000</p> <p>Stream depth (m): Average 1.5 m, major regions with small pools</p> <p>Velocity: Slow/moderate ($m/min/sec$)</p> <p>Canopy cover (%): 20%</p> <p>Stream Morphological Types</p> <p>Rime - (%) ; Run 50% (%) ; pools 50% (%)</p> <p>Channelling: (0) No (1) Yes ✓</p> <p>Dam Present: (0) No (1) Yes ✓</p>
F. AQUATIC VEGETATION	<p>Free floating hydrophytes: ✓</p> <p>Floating leaf emergent hydrophytes: ✓</p> <p>Reedbed and submergent hydrophytes: ✓</p> <p>Suspended hydrophytes: ✓</p> <p>Wetland or marsh plants: ✓</p> <p>Attached algae: ✓</p> <p>Others (Specify): புதிர்ச்சூல், வெள்ளி, காத்து,</p>
G. WATER QUALITY	<p>Temperature ($^{\circ}\text{C}$): 30</p> <p>Conductivity:</p> <p>Dissolved Oxygen:</p> <p>pH: 7.5 Chloride = 50 ppm</p> <p>Turbidity: clear Alkalinity = 240 "</p> <p>Nitrate: A Hardness = 300 "</p> <p>Nitrite: A Calcium = 200 "</p> <p>Phosphorus: 0.5 ppm Magnesium = 100 "</p> <p>Sulphate: With no sulphate Iron = 0.3 ppm</p> <p>Water colour: (0) None ✓ (1) Sewage (2) Petroleum (3) Chemical (4) Fitter (5) Acid (6) Other</p> <p>Water colour: (0) Colourless ✓ (1) Green (2) Brown (3)</p> <p>Turbidity (if not measured) (0) Clear ✓ (1) Slightly turbid (2) Turbid (3) Opaque (4) Stained (5) Other</p>

H. BOTTOM MATERIALS	
a. Inorganic Materials (%)	Boulders 20% Boulders Cobbles 10% Gravel 20% Sand 40% Silt 10% Clay 10% filled ditches (Subtotal adds up to 100%)
b. Organic Materials	(1) Deciduous ✓ (2) Muck Mud ✓ (3) Mud ✓



ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET I

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low levels)

Name of the River: Gayathri Puzha, Tributary of Bhavathia puzha	
Name of survey site: Lower/Middle/Upper "Seetharkundu"	District and Panchayath: Palakkad District, Kollemcode Panchayat
CPS Routing (Lat. and Long. (Optional))	Name of Team Leader: Dr K K Hemalatha
Date: 25. 05. 2010	Time: 01. 10 PM

N.B. If not much information available, Enter the respective option number in question box.

A. WEATHER CONDITIONS	(1) Sunny <input checked="" type="checkbox"/> (2) Cloudy <input type="checkbox"/> (3) Rainy <input type="checkbox"/> Temperature (Atmosphere): 38 °C Has there been rain in the last 7 days? (1) No <input checked="" type="checkbox"/> (2) Yes <input type="checkbox"/>
B. STREAM CHARACTERIZATION	Stream nature: (1) Permanent <input type="checkbox"/> (2) Episodic <input checked="" type="checkbox"/> Stream type: (1) I (2) II (3) III <input checked="" type="checkbox"/> (4) IV (5) V (6) VI order Stream origin: (1) Mountain <input checked="" type="checkbox"/> (2) Laterite hill (3) Swamp (4) Sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: (1) Forest <input checked="" type="checkbox"/> (2) Grass land <input type="checkbox"/> (3) Agriculture <input checked="" type="checkbox"/> (4) Plantation <input checked="" type="checkbox"/> (5) Tribal settlement <input type="checkbox"/> (6) Human habitation <input checked="" type="checkbox"/> (7) Townships <input type="checkbox"/> (8) Industrial area <input type="checkbox"/> (9) Others (Specify) Local Watershed Nonpoint Sources Pollution: (0) No evidence <input checked="" type="checkbox"/> (1) Some potential sources <input type="checkbox"/> (2) Obvious sources <input type="checkbox"/> Local Watershed Erosion: (0) None <input type="checkbox"/> (1) Moderate <input checked="" type="checkbox"/> (2) Heavy <input type="checkbox"/>
D. RIPARIAN VEGETATION	(1) Trees <input checked="" type="checkbox"/> (2) Shrubs <input checked="" type="checkbox"/> (3) Herbs <input checked="" type="checkbox"/> (4) Grasses <input checked="" type="checkbox"/> (*) Quarry (Specify) Twinheas (5) Forest plantations <input checked="" type="checkbox"/> (6) Agricultural plantations <input checked="" type="checkbox"/> (7) Mixed agriculture <input checked="" type="checkbox"/> (0) No vegetation



E. INSTREAM FEATURES	
	Reach length (m): <u>300(m)</u>
	Stream width (m): <u>50 m</u>
	Sampling reach area (m^2): <u>15000 m²</u>
	Stream depth (m): <u>About 10m</u>
	Velocity <u>Slow, moderate</u> (m/min/m)
	Canopy cover (%) <u>10%</u>
Stream Morphological Types	
	Riffle ... <u>10</u> ... (%) ; Run ... <u>20</u> ... (%) ; pools <u>70</u> ... (%)
	Channelling: (0) No (1) Yes <input checked="" type="checkbox"/>
	Dam Present: (0) No <input checked="" type="checkbox"/> (1) Yes
F. AQUATIC VEGETATION	
	Free floating hydrophytes: <u>no</u>
	Floating but rooted hydrophytes: <u>no</u>
	Rooted and submerged hydrophytes: <u>no</u>
	Suspension hydrophytes: <u>no</u>
	Wetland or marsh plants: <u>no</u>
	Attached algae: <u>Very slightly</u>
	Others (Specify): <u>Dog chest water</u>
G. WATER QUALITY	
	Temperature ($^{\circ}\text{C}$): <u>20</u> $^{\circ}\text{C}$
	Conductivity: <u>Permissible</u>
	Dissolved Oxygen:
	pH: <u>7</u> Chloride = <u>30 ppm</u> <u>250 ppm</u>
	Turbidity: <u>clear</u> Alkalinity = <u>50 ppm</u> <u>250 "</u>
	Nitrate: <u>x</u> Calcium = <u>70 ppm</u> <u>300 "</u>
	Nitrite: <u>x</u> Hardness = <u>80 ppm</u> <u>200 "</u>
	Phosphate: <u>0.5 ppm</u> Magnesium = <u>10 ppm</u> <u>140 "</u>
	Sulphate: <u>Very much within the</u> <u>200 ppm</u> Iron = <u>0.3 ppm</u> "
	Water colour: (0) None <input checked="" type="checkbox"/> (1) Sewage (2) Pollution (3) Chemical (4) Fishy (5) Acid (6) Other
	Water colour: (0) Colourless <input checked="" type="checkbox"/> (1) Green (2) Brown (3).....
	Turbidity (if not measured) (0) Clear <input checked="" type="checkbox"/> (1) Slightly turbid (2) Turbid (3) Opaque (4) Standard (5) Other

H. BOTTOM MATERIALS	
a. Inorganic Materials (%)	
Boulders	Could not reach the bottom. Sides
Boulders	one rocky 100%
Cobbles	Lower regions with Boulder 40%
Gravel	Cobble 40%
Sand	Gravel 50%
Silt	—
Clay	—
(Should add up to 100%)	
b. Organic Materials	(1) Decaying (2) Much Mud (3) Mar
	—



ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low levels)

Name of the River: KALPATHY PUZHA, Tributary of BHARATHA PUZHA	
Name of survey site: KADUKKAM KUNNALI - NILAMPATTY Lower/Middle/Upper <input checked="" type="checkbox"/>	District and Panchayat: Palakkad Dist, Palakkad municipality
GPS Routing (Lat. and Long): (Optional)	Name of Team Leader: Dr. K. K. Hemalatha
Date: 26. 05. 2010	Time: 9 AM

N.B. Put tick mark to appropriate options. Enter the respective option number for incomplete/Excel sheet.

A. WEATHER CONDITIONS	(1) Sunny <input checked="" type="checkbox"/> (2) Cloudy <input type="checkbox"/> (3) Rainy <input type="checkbox"/> Temperature (Atmosphere): 38 °C Has there been rain in the last 7 days: (1) No <input checked="" type="checkbox"/> (2) Yes <input type="checkbox"/>
B. STREAM CHARACTERIZATION	Stream source: (1) Permanent <input type="checkbox"/> (2) Episodic <input checked="" type="checkbox"/> Stream type: (1) I (2) II (3) III <input checked="" type="checkbox"/> (4) IV (5) V (6) VI order Stream origin: (1) Mountain <input checked="" type="checkbox"/> (2) Lagoon sea <input type="checkbox"/> (3) Swamp <input type="checkbox"/> (4) Sacred grove <input type="checkbox"/>
C. WATERSHED FEATURES	Potentially Susceptible Land Use Type: (1) Forest <input type="checkbox"/> (2) Grass land <input type="checkbox"/> (3) Agriculture <input checked="" type="checkbox"/> (4) Plantation <input checked="" type="checkbox"/> (5) Tribal settlements <input checked="" type="checkbox"/> (6) Human habitation <input checked="" type="checkbox"/> (7) Township <input checked="" type="checkbox"/> (8) Industrial area <input type="checkbox"/> (9) Others (Specify) Local Watershed Nonpoint Source Pollution: (0) No evidence (1) Some potential sources (2) Obvious sources Local Watershed Erosion: (0) None (1) Moderate <input checked="" type="checkbox"/> (2) Heavy <input type="checkbox"/>
D. RIPARIAN VEGETATION	(1) Trees <input checked="" type="checkbox"/> (2) Shrubs <input checked="" type="checkbox"/> (3) Herbs <input checked="" type="checkbox"/> (4) Grasses <input checked="" type="checkbox"/> (*) Others (Specify) Turmeric (5) Forest plantations <input type="checkbox"/> (6) Agricultural plantations <input checked="" type="checkbox"/> (7) Mixed agriculture <input checked="" type="checkbox"/> (0) No vegetation



E. INSTREAM FEATURES	
	Rough length (m): 200 m
	Stream width (m): 340 m
	Sampling cross area (m ²): 40000 m²
	Stream depth (m): 1.5 average
	Variety..... Shrub..... no/min/none.
	Canopy cover (%): 5%
Stream Morphological Types	
	River ... (%) ; Run 20% (%) ; pools 80 (%)
	Characterized: (0) No <input checked="" type="checkbox"/> (1) Yes <input checked="" type="checkbox"/> (Bridge)
	Dam Present: (0) No <input checked="" type="checkbox"/> (1) Yes
F. AQUATIC VEGETATION	
	Free floating hydrophytes: <input checked="" type="checkbox"/>
	Floating but rooted hydrophytes: <input checked="" type="checkbox"/>
	Rooted and submersed hydrophytes: <input checked="" type="checkbox"/>
	Suspended hydrophytes: <input checked="" type="checkbox"/>
	Wetland or marsh plants: <input checked="" type="checkbox"/>
	Attached algae: <input checked="" type="checkbox"/>
	Others (Specify): Twines, Bamboo, Grass, Ipomoea ஏந்தை, சுவாக்கி, வாங்கி, ஓங்கி
G. WATER QUALITY	
	Temperature (°C): 26 °C
	Conductivity:
	Dissolved Oxygen:
	pH: 7.5 Chloride : 40 ppm
	Turbidity: Slightly Alkalinity : 70 ppm
	Nitrate: X Hardness : 120 "
	Nitrite: X Calcium : 100 "
	Phosphate: < 0.5 ppm Magnesium : 20 "
	Sulphate: 200 ppm Iron : < 3 ppm
	Water colour: (0) None <input checked="" type="checkbox"/> (1) Yellow (2) Petroleum (3) Chemical (4) Fatty (5) Acid (6) Other
	Water colour: (0) Colourless (1) Green (2) Brown (3) fele greenish
	Turbidity (if not measured)
	(0) Clear (1) Slightly turbid <input checked="" type="checkbox"/> (2) Turbid (3) Opague (4) Sediment (5) Other



H. BOTTOM MATERIALS	
a. Inorganic Materials (%)	Boulders 10% Cobbles Gravel 10% Sand 40% Silt 20% Clay 20%
	(Should add up to 100%)
b. Organic Materials	(1) Deciduous (2) Mixed Must (3) Mud ✓ ✓



ANNEXURE - DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET I

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low fauna)

Name of the River: CHITTURPUZHA, TRIBUTARY OF BHARATHAPUZHA	
Name of survey site: Lower/Middle/ Upper ✓	District and Panchayat: Palakkad Dist, Chittur municipality area
GPS Reading (Lat. and Long.: (Optional))	Name of Team Leader: Dr. K.K. Hemalatha
Date: 24.05.2010	Time: 9 AM

N.B. For tick mark appropriate options. Enter the respective option number in response boxes.

A. WEATHER CONDITIONS	(1) Sunny ✓ (2) Cloudy (3) Rainy Temperature (Atmosphere): 38 °C Has there been rain in the last 7 days? (1) No ✓ (2) Yes
B. STREAM CHARACTERIZATION	Stream nature: (1) Permanent (2) Ephemeral ✓ Stream type: (1) I (2) II (3) III ✓ (4) IV (5) V (6) VI minor Stream origin: (1) Mountains ✓ (2) Lateral river (3) Swamp (4) Sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: (1) Forest (2) Grass land (3) Agriculture ✓ (4) Plantation ✓ (5) Residential area (6) Human habitation ✓ (7) Township ✓ (8) Industrial area ✓ (9) Others (Specify) Local Watershed Nonpoint Source Pollutants: (0) No evidence (1) Some point source ✓ (2) Ongoing sources Local Watershed Erosion: (0) None (1) Moderate ✓ (2) Heavy
D. RIPARIAN VEGETATION	(1) Trees ✓ (2) Shrubs ✓ (3) Herbs ✓ (4) Grasses ✓ (5) Others (Specify) (5) Forest plantations (6) Agricultural plantations ✓ (7) Mixed agriculture ✓ (8) No vegetation



E. INSTREAM FEATURES	
	Rough length (m): 100 m
	Stream width (m): 150 m
	Sampling reach area (m^2): 15000 m^2
	Stream depth (m): 1.5 m average
	Velocity: and moderate / fast / slow
	Canopy cover (%): 10%
	Stream Morphological Types
	Ripple ... 10% (0%) Ram ... 50% (0%) pools 40% (0%)
	Channel trend: (0) No (1) Yes ✓ (Bridge)
	Dam Present: (0) No (1) Yes ✓
F. AQUATIC VEGETATION	
	Free floating hydrophytes: ✓
	Floating leaf emergent hydrophytes: ✓
	Rooted wet submergent hydrophytes: ✓
	Suspended hydrophytes ✓ /
	Wetland or marsh plants ✓
	Attached signs: ✓
	Others (Specify): Twines, തുണികൾ, പട്ടാളകൾ, മുളകൾ, കാലാന്തരം
G. WATER QUALITY	
	Temperature (°C): 29 C
	Conductivity:
	Dissolved Oxygen:
	pH: 7.5 Chloride = 90 ppm
	Turbidity: clear Alkalinity = 220 ppm
	Nitrate: ✓ Hardness = 280 "
	Nitrite: ✓ Calcium = 180 "
	Phosphate: 0.5 ppm Magnesium = 100 "
	Sulphate: Wilton 200 ppm Iron = 0.3 "
	Water colour: (0) None ✓ (1) Sewage (2) Petroleum (3) Chemical (4) Fatty (5) Acid (6) Other
	Water colour: (0) Colourless ✓ (1) Green (2) Brown (3)
	Turbidity (if not measured) (0) Clear ✓ (1) Slightly turbid (2) Turbid (3) Opaque (4) Sediment (5) Other



H. BOTTOM MATERIALS	
a. Inorganic Materials (%)	Benthic <i>20%</i> Bottom <i>20%</i> Cobbles Gravel <i>10%</i> Sand <i>20%</i> Silt <i>10%</i> Clay <i>10%</i> (Should add up to 100%)
b. Organic Materials	(1) Detritus ✓ (2) Muck Mud ✓ (3) Mar ✗



ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (Use separate sheets for High/Mid/Low levels)

Name of the River:	GAYATHRI PUZHA, Tributary of Bharathapuzha	
Name of survey site:	OOTTARA	District and Panchayat:
Lower/Middle/Upper	Middle	PALAKKAD DIST., KOLLEMSCODE PANCHAYATH
GPS Roaming (Lat. and Long. (Optional))	Name of Team Leader:	
Date:	25.05.2010	Time: 9 AM

N.B. For each mark an appropriate option. Enter the respective option number in respective Boxed sheet.

A. WEATHER CONDITIONS	(1) Sunny ✓ (2) Cloudy (3) Rainy Temperature (Atmosphere): <u>38</u> °C Has there been rain in the last 7 days: (1) No ✓ (2) Yes
B. STREAM CHARACTERIZATION	Stream nature: (1) Perennial (2) Episodic ✓ Stream type: (1) I (2) II (3) III ✓ (4) IV (5) V (6) VI water Stream origin: (1) Mountain ✓ (2) Lacustrine area (3) Swamp (4) Sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: (1) Forest (2) Grass land (3) Agriculture ✓ (4) Plantation ✓ (5) Tribal settlement (6) Human habitation ✓ (7) Township ✓ (8) Industrial area (9) Others (Specify) Local Watershed Nonpoint Source Pollution: (0) No evidence (1) Some pointlike sources ✓ (2) Obvious sources Local Watershed Erosion: (0) None (1) Moderate ✓ (2) Heavy
D. RIPARIAN VEGETATION	(1) Trees ✓ (2) Shrubs ✓ (3) Herbs ✓ (4) Grasses ✓ (*) Others (Specify) <u>Twiners</u> (5) Forest plantations (6) Agricultural plantations ✓ (7) Minor agroforests ✓ (0) No vegetation



E. INSTREAM FEATURES	
	Rough length (m): <u>200m</u>
	Stream width (m): <u>300 m</u>
	Sampling reach area (m^2): <u>20000 m²</u>
	Stream depth (m): <u>1.5 m</u> in certain regions, all other regions are ditches, or present below.....
	Velocity: m/s..... m/s..... m/s.....
	Canopy cover (%): <u>30%</u>
	Stream Morphological Types
	Ripple (%) ; Run <u>80%</u> (%) ; pools <u>20</u> (%)
	Channelling: (0) No (1) Yes <u>✓ (Bridge)</u>
	Dam Present: (0) No (1) Yes
F. AQUATIC VEGETATION	
	Free floating hydrophytes: <u>✓</u>
	Floating but rooted hydrophytes: <u>✓</u>
	Rooted and submergent hydrophytes: <u>✓</u>
	Suspended hydrophytes: <u>✓</u>
	Wetland or marsh plants: <u>✓</u>
	Attached algae: <u>✓</u>
	Others (Specify): <u>Marsh Twines, Shrubs, Small trees, Full of vegetation (m, 2), garden, around, 2030, 2030, 2030 etc.</u>
G. WATER QUALITY	
	Temperature ($^{\circ}\text{C}$): <u>32 ^{\circ}\text{C}</u>
	Conductivity:
	Dissolved Oxygen: <u>Chloride = 70 ppm</u>
	pH: <u>7.5</u> Alkalinity = <u>100 ppm</u>
	Turbidity: <u>clear</u> Calcium = <u>270 ppm</u>
	Nitrate: <u>X</u> Hardness = <u>510 ppm</u>
	Nitrite: <u>X</u> Magnesium = <u>240</u> +
	Phosphate: <u>0.5 ppm</u> Iron = <u>0.3 ppm</u>
	Sulphate: <u>higher than 200 ppm</u>
	Water colour: (0) None <u>✓</u> (1) Sewage (2) Petroleum (3) Chemical (4) Fisley (5) Acid (6) Other
	Water colour: (0) Colourless <u>✓</u> (1) Green (2) Brown (3)
	Turbidity (if not measured) (0) Clear <u>✓</u> (1) Slightly turbid (2) Turbid (3) Opaque (4) Sediment (5) Other



H. BOTTOM MATERIALS	
a. Inorganic Materials (%)	Boulders <i>30%</i> Boulders <i>20%</i> Cobbles <i>20%</i> Gravel Sand <i>20%</i> Silt <i>10%</i> Clay — (Should add up to 100%)
b. Organic Materials	(1) Deciduous (2) Mixed Must (3) Mar I <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>

ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low lands)

Name of the River: KALPATHYPPUZHA, Tributary of Bharathapuzha	
Name of survey site: Kalpathy palem site	District and Panchayath: Palakkad dt. Palakkad Municipality
Lower/Middle/Upper Middle	
GPS Reading (Lat. and Long. (Optional)	Name of Team Leader: Dr. K. K. Hemalatha
Date: 26.05.2010	Time: 12.45 pm.

A. WEATHER CONDITIONS	Sunny/Cloudy/Rainy (Tick) Temperature (Atmosphere): 30°C Has there been rain in the last 7 days: No
B. STREAM CHARACTERIZATION	Stream nature: Perennial / ephemeral ✓ Stream type: I/II/III/IV/V/VI order Stream origin: Montane, laterite hill, swamp, sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: forest, grass land, agriculture, plantation, tribal settlement, human habitation, township, industrial area, others (Specify) Local Watershed Nonpoint Source Pollution: No evidence. Some potential sources, Obvious sources Local Watershed Erosion: None, Moderate, Heavy
D. RIPARIAN VEGETATION	Trees, shrubs, herbs and grasses, others (Specify) Forest plantations, agricultural plantations, mixed agriculture No vegetation

E. INSTREAM FEATURES	Reach length (m): 280 m Stream width (m): 150 m Sampling reach area (m ²): 30000 m ² Stream depth (m): 1.5 m average Velocity: slow Canopy cover (%) 5% Stream Morphological Types Riffle (%) ; Run..... 20% ; pools .. 20 .. (%) Channelized: Yes/ No (Bridge) Dam Present: Yes/No ✓
F. AQUATIC VEGETATION	Free floating hydrophytes: ✓ Floating but rooted hydrophytes: ✓ Rooted and submerged hydrophytes ✓ Suspended hydrophytes ✓ Wetland or marsh plants ✓ Attached algae: ✓ Others (Specify): Twisters , Bawn bao
G. WATER QUALITY	Temperature (°C): 28°C Conductivity: Dissolved Oxygen: pH: 7.5 Chloride = 100 ppm Turbidity: slight Alkalinity = 80 " Nitrite: x Hardness = 140 " Nitrate: x Calcium = 110 " Phosphate: 1.05 ppm Magnesium = 30 " Sulphate: 200 ppm Iron = 0.3 " Water odours: None/Sewage/ Petroleum /Chemical/ Fishy/Acid/ Other Water colour: Colourless/green/brown/..... pale greenish Turbidity (if not measured) Slightly Turbid Clear/Slightly turbid/Turbid/Opaque/Stained/Other

H. INORGANIC MATERIALS (%)	Bedrock	20%
	Boulder	
	Cobble	
	Gravel	10%
	Sand	30%
	Silt	25%
	Clay	20%
(Should add up to 100%)		
I. ORGANIC MATERIALS	Detritus/Muck	Mud/Marl
	✓	✓
	(Tick)	✗

ANNEXURE - DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET I

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low lands)

Name of the River: CHITTURPUZHA, TRIBUTARY OF BHARATHAPUZHA	
Name of survey site: PALAKKAD DIST. PARLI CHECK DAM	District and Panchayath:
Lower/Middle/Upper LOWER	Palakkad Dist., Parli Panchayat
GPS Reading (Lat. and Long (Optional)	Name of Team Leader: Dr.K.K. Hemalatha
Date: 27.05.2010	Time: 3.30 pm.

J. WEATHER CONDITIONS	Sunny/Cloudy/Rainy (Tick) Temperature (Atmosphere): 38°C Has there been rain in the last 7 days: No
K. STREAM CHARACTERIZATION	Stream nature: Perennial / ephemeral ✓ Stream type: I/II/III/IV/V/VI order Stream origin: Montane, laterite hill, swamp, sacred grove
L. WATERSHED FEATURES	Predominant Surrounding Land Use Type: forest, grass land, agriculture, plantation, tribal settlement, human habitation, township, industrial area, others (Specify) Local Watershed Nonpoint Source Pollution: No evidence. Some potential sources. Obvious sources Local Watershed Erosion: None, Moderate, Heavy
M. RIPARIAN VEGETATION	Trees, shrubs, herbs and grasses, others (Specify) marshy plants Forest plantations, agricultural plantations, mixed agriculture No vegetation

N. INSTREAM FEATURES	Reach length (m):	250 m
	Stream width (m):	250 m
	Sampling reach area (m ²):	62500 m ²
	Stream depth (m):	1.5 m average
	Velocity:	moderate
	Canopy cover (%):	10%
	Stream Morphological Types	
	Riffle	10% (%)
O. AQUATIC VEGETATION	Run	40% (%)
	pools	50% (%)
	Channelized:	Yes ✓ No
P. WATER QUALITY	Dam Present:	Yes ✓ No check dam
	Free floating hydrophytes:	✓
	Floating but rooted hydrophytes:	✓
	Rooted and submerged hydrophytes	✓
	Suspended hydrophytes	✓
	Wetland or marsh plants	✓
	Attached algae:	✓
Others (Specify):		Bamboo
P. WATER QUALITY	Temperature (°C):	28°C
	Conductivity:	
	Dissolved Oxygen:	
	pH:	7.5
	Turbidity:	Slightly
	Nitrite:	x
	Nitrate:	x
	Phosphate:	0.5 ppm
	Sulphate:	>200 ppm
	Chloride = 210 ppm	
Water odours: None/Sewage/ Petroleum /Chemical/ Fishy/Acid/ Other		
Water colour: Colourless/green/brown/		Slightly greenish
Turbidity (if not measured)		
Clear/Slightly turbid/Turbid/Opaque/Stained/Other		

Q. INORGANIC MATERIALS (%)	Bedrock	<i>30%</i>
	Boulder	
	Cobble	
	Gravel	<i>10%</i>
	Sand	<i>20%</i>
	Silt	<i>20%</i>
	Clay	<i>20%</i>
(Should add up to 100%)		
R. ORGANIC MATERIALS	Detritus/Muck Mud/Marl (Tick)	

ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 1

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low lands)

Name of the River: GAYATHRI PULZHA, Tributary of BHARATHAPULZHA	
Name of survey site: MAYANNUUR	District and Panchayath: PALAKKAD DIST, MAYANNUUR Panchayat
Lower/Middle/Upper LOWER	
GPS Reading (Lat. and Long. (Optional)	Name of Team Leader: Dr. K. K. HEMALATHA
Date: 27.05.2010	Time: 9 AM

A. WEATHER CONDITIONS	Sunny/ <input checked="" type="checkbox"/> Cloudy/Rainy (<input checked="" type="checkbox"/> Tick) Temperature (Atmosphere): 39°C Has there been rain in the last 7 days: no
B. STREAM CHARACTERIZATION	Stream nature: Perennial / ephemeral <input checked="" type="checkbox"/> Stream type: VII/III/ <input checked="" type="checkbox"/> IV/V/VI order Stream origin: Montane/ <input checked="" type="checkbox"/> laterite hill, swamp, sacred grove
C. WATERSHED FEATURES	Predominant Surrounding Land Use Type: forest, grass land, agriculture/ <input checked="" type="checkbox"/> , plantation/ <input checked="" type="checkbox"/> , tribal settlement, human habitation, township, industrial area, others (Specify) Local Watershed Nonpoint Source Pollution: No evidence. Some potential sources/ <input checked="" type="checkbox"/> Obvious sources Local Watershed Erosion: None, Moderate/ <input checked="" type="checkbox"/> Heavy
D. RIPARIAN VEGETATION	Trees, shrubs/ <input checked="" type="checkbox"/> herbs and grasses/ <input checked="" type="checkbox"/> , others (Specify) Twisters Forest plantations, agricultural plantations, mixed agriculture No vegetation

E. INSTREAM FEATURES	Reach length (m):	300 m
	Stream width (m):	200 m
	Sampling reach area (m^2):	600000 ²
	Stream depth (m):	1.5 m average
	Velocity:	Moderate
	Canopy cover (%):	10%
	Stream Morphological Types	
	Riffle	10% (%)
	Run	50% (%)
	pools	40% (%)
	Channelized: Yes/No	Bridge
	Dam Present: Yes/No	✓
F. AQUATIC VEGETATION	Free floating hydrophytes:	✓
	Floating but rooted hydrophytes:	✓
	Rooted and submerged hydrophytes	✓
	Suspended hydrophytes	✓
	Wetland or marsh plants	✓
	Attached algae:	✓
	Others (Specify):	Hydrocyanus, Ipomea, Barriles
G. WATER QUALITY	Temperature ($^{\circ}\text{C}$):	28 $^{\circ}\text{C}$
	Conductivity:	.
	Dissolved Oxygen:	.
	pH:	7.5
	Turbidity:	Clean
	Nitrite:	✓
	Nitrate:	✓
	Phosphate:	0.5 ppm
	Sulphate:	high sulphur 200 ppm
	Chloride = 10 ppm Alkalinity = 800 ppm Calcium = 240 ppm Magnesium = 240 ppm Manganese = 180 ppm Iron = 0.3 ppm	
Water odours: None/Sewage/Petroleum/Chemical/Fishy/Acid/Other		
Water colour: Colourless/green/brown/		
Turbidity (if not measured)		
Clear/Slightly turbid/Turbid/Opaque/Stained/Other		

H. INORGANIC MATERIALS (%)	Bedrock	5%
	Boulder	10%
	Cobble	15%
	Gravel	
	Sand	30%
	Silt	25%
	Clay	10%
	(Should add up to 100%)	
I. ORGANIC MATERIALS	Detritus/Muck Mud/Marl ✓ ✓ (Tick)	



ANNEXURE: DATA SHEETS

FISH MONITORING PROGRAMME (KSBB)

DATA SHEET I

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET

(Use separate sheets for High/Mid/Low banks)

Name of the River: KALPATHY PUZHAR	
Name of survey site: PARLI PALAM	District and Panchayath: PALAKKAD DIST., PARLI PANCHAYATH
Lower/Middle/Upper LOWER	
GPS Routing (Lat. and Long. (Optional))	Name of Team Leader: DR. K. K. HEMALATHA
Date: 26.05.2010	Time: 03.30 pm

N.B. For each mark an appropriate option. Enter the respective option number in respective Boxed sheet.

A. WEATHER CONDITIONS	(1) Sunny <input checked="" type="checkbox"/> (2) Cloudy <input type="checkbox"/> (3) Rainy <input type="checkbox"/> Temperature (Atmosphere): 38 °C Has there been rain in the last 7 days: (1) No <input checked="" type="checkbox"/> (2) Yes <input type="checkbox"/>
B. STREAM CHARACTERIZATION	Stream nature: (1) Permanent <input type="checkbox"/> (2) Ephemeral <input checked="" type="checkbox"/> Stream type: (1) I (2) II (3) III <input checked="" type="checkbox"/> (4) IV (5) V (6) VI minor Stream origin: (1) Mountain <input checked="" type="checkbox"/> (2) Lagoon area <input type="checkbox"/> (3) Swamp <input type="checkbox"/> (4) Swampy grove <input type="checkbox"/>
C. WATERSHED FEATURES	Prevalent Successioning Land Use Type: (1) Forest <input type="checkbox"/> (2) Grass land <input type="checkbox"/> (3) Agriculture <input checked="" type="checkbox"/> (4) Plantation <input type="checkbox"/> (5) Tidal wetland <input type="checkbox"/> (6) Human habitation <input checked="" type="checkbox"/> (7) Township <input checked="" type="checkbox"/> (8) Industrial area <input type="checkbox"/> (9) Others (Specify) Local Watershed Nonpoint Source Pollution: (0) No evidence <input type="checkbox"/> (1) Some potential sources <input checked="" type="checkbox"/> (2) Obvious sources <input type="checkbox"/> Local Watershed Erosion: (0) None <input type="checkbox"/> (1) Moderate <input checked="" type="checkbox"/> (2) Heavy <input type="checkbox"/>
D. RIPARIAN VEGETATION	(1) Trees <input checked="" type="checkbox"/> (2) Shrubs <input checked="" type="checkbox"/> (3) Herbs <input checked="" type="checkbox"/> (4) Grasses <input checked="" type="checkbox"/> (?) Others (Specify) Turmeric (5) Forest plantations <input type="checkbox"/> (6) Agricultural plantations <input checked="" type="checkbox"/> (7) Mixed agriculture <input checked="" type="checkbox"/> (0) No vegetation <input type="checkbox"/>



E. INSTREAM FEATURES	
	Rough length (m): <u>300m</u>
	Stream width (m): <u>200m</u>
	Sampling reach area (m ²): <u>6000000</u>
	Stream depth (m): <u>2m average</u>
	Velocity: <u>moderate</u> m/min/sec.
	Canopy cover (%) <u>10%</u>
Stream Morphological Types	
	Riffle ... <u>10%</u> (%) Reme ... <u>50%</u> (%) pools ... <u>40</u> (%)
	Channelling: (0) No (1) Yes ✓ <u>(Bridge)</u>
	Debris Present: (0) No ✓ (1) Yes
F. AQUATIC VEGETATION	
	Floating floating hydrophytes: ✓
	Floating but rooted hydrophytes: ✓
	Rooted and submerged hydrophytes: ✓
	Suspended hydrophytes: ✓
	Wetland or marsh plants: ✓
	Attached algae: ✓
	Others (Specify): <u>Twiners, common grass, Ipomoea, Bamboo</u>
G. WATER QUALITY	
	Temperature (°C): <u>29 °C</u>
	Conductivity:
	Dissolved Oxygen:
	pH: <u>7.5</u>
	Turbidity: <u>slightly</u>
	Nitrate: <u>x</u>
	Nitrite: <u>x</u>
	Phosphorus: <u>0.5PPM</u>
	Sulphate: <u>>200 ppm</u>
	Chloride: <u>220 ppm</u>
	Alkalinity: <u>190</u> "
	Hardness: <u>340</u> "
	Calcium: <u>200</u> "
	Magnesium: <u>40</u> "
	Irons: <u>< 0.3</u> "
	Water colour: (0) None (1) Sewage ✓ (2) Petroleum (3) Chemical (4) Fishy (5) Acid (6) Other <u>foul smelling</u>
	Water colour: (0) Colourless (1) Green (2) Brown (3) <u>Showy</u> (4) Coloured
	Turbidity (if not measured) (0) Clear (1) Slightly turbid ✓ (2) Turbid (3) Opaque (4) Seated (5) Other

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H. BOTTOM MATERIALS		Benthos	3%
<i>a.</i> Inorganic Materials (%)		Boulder	—
		Cobbles	—
		Gravel	10%
		Sand	20%
		Silt	20%
		Clay	20%
(Should add up to 100%)			
<i>b.</i> Organic Materials		(1) Deciduous (2) Mixed Must (3) Mar	
		✓ ✓ ↗	

FISH MONITORING PROGRAMME (KSPB)

DATA SHEET 2

A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)

[Use separate sheets for high/mid/low bands]

Name of the River:	BHARATHAPUZHA'S TRIBUTARY	
Name of the tributary (if any):	CHITTURPUZHA	
Name of survey site: Kunnamkattupathy ✓ Highland/Midland/Lowland	District and Panchayath: Palakkad dist, Perumathura panchayat, Chittur	
GPS Reading (Lat. and Long.) (Optional)	Name of Team leader: Dr. K.K. Hemalatha	
Date: 24-05-2010	Time: 1 Pms.	
Type of fish trap:	Sampling duration for each net (minutes):	
1. Cast net ✓ 2. Gill net ✓ 3. Trap 4. Mosquito net ✓ 5. Other methods (specify)	1. One hr. - Cast net ① 2. One hr. - Gill net ② 3. 2 hrs - Gill net ③ 4. Mosquito net - Random 5.	
Abnormalities recorded in fish (if any): Deformities; Ecto/endo; Fungus; Lesions; Multiple infections; External; Others nil		



FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 2

A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)

(Use separate sheets for high/mid/low banks)

Name of the River:	GAYATHRI PUZHA, TRIBUTARY OF BHARATHA PUZHA	
Name of the tributary (if any):		
Name of survey site: Seetharkundee ✓ Hillyland/Middleland/Lowland	District and Panchayath: Palakkad Dist., Kollengode Panchayath	
GPS Reading (Lat. and Long. (Optional)	Name of Team leader: Dr. K.K. HEMALATHA	
Date: 25.05.2010	Time: 01.10 pm	
Types of nets used:	Sampling duration for each net (minutes):	
1. Cast net ✓ 2. Gill net ✓ 3. Trap 4. Mosquito cloth ✓ 5. Other methods (specify)	1. One hour — Cast net ① 2. One hour — Gill net ① 3. Two hours — Gill net ② 4. Random — mosquito net 5.	
Anomolies recorded in fish (if any): Detrimities; Ecto/endo ticks; Fungus; Leucosis; Multiple anomalies; Emaciated; Others Nil		



FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 2

A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)

(Use separate sheets for high/mid/low banks)

Name of the River:	BHARATHAPUZHA	
Name of the tributary (if any):	KALPATHY PUZHA	
Name of survey site: KADUKKAMKUNNU NILAMPATHY Hightest/Middlest/Lowest HIGH LAND	District and Panchayatti: PALAKKAD DT. Palakkad municipality	
GPS Reading (Lat. and Long. (Optional))	Name of Team Leader: Dr. K. K. HEMALATHA	
Date: 26.05.'10	Time: 9 AM	
Types of nets used:	Sampling duration for each net (minutes):	
1. Cast net <input checked="" type="checkbox"/>	1. One hour - Cast net	
2. Gill net <input checked="" type="checkbox"/>	2. One hour - Gill net <input checked="" type="checkbox"/>	
3. Trap	3. 2 hours - Gill net <input checked="" type="checkbox"/>	
4. Mosquito cloth <input checked="" type="checkbox"/>	4. mosquito Net - Random	
5. Other methods (specify)	5.	
Anomolies recorded in fish (if any): Detrimates; Ecto/Endo; Fungus; Lesions; Multiple anomolies; Emaciated; Others m 		



FISH MONITORING PROGRAMME (KSHI)

DATA SHEET 2

A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)

(Use separate sheets for trawl and tow hauls)

Name of the River:	<i>Bharathapuzha's Tributary</i>	
Name of the tributary (if any):	<i>CHITTUR PUZHA</i>	
Name of survey site: <i>Puzhappalam (Chittur College Jr.)</i> Highland/Midland/Lowland	District and Panchayat: <i>Palakkad Dist, Chittur Municipality</i>	
GPS Reading (Lat. and Long. (Optional))	Name of Team leader: <i>Dr. K. V. Hemalatha</i>	
Date: <i>24 - 05 - 10</i>	Time: <i>9 am</i>	
Type of nets used:	Sampling duration for each net (minutes):	
1. Cast net ✓ 2. Gill net ✓ 3. Trap 4. Mosquito cloth ✓ 5. Other methods (specify)	1. One hr - Cast net ① 2. One hr - Gill net ② 3. Two hrs - Cast net ③ 4. Mosquito net - Random 5.	
Abnormalities recorded in fish (if any): Dermatitis; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others		<i>nil</i>



FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 2

A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)

(Use separate sheets for high/ mid/ low banks)

Name of the River: BHARATHAPUZHA	
Name of the tributary (if any): GAYATHRIPUZHA	
Name of survey site: OTTARA	District and Panchayath: PALAKKAD DIST, Kallumcode panchayath
Highland/Midland/Lowland	
GPS Recording (Lat. and Long.) (Optional)	Name of Team leader: Dr. K. K. HEMALATHA
Date: 25-05-2010	Time: 9 AM
Type of nets used:	Sampling duration for each net (minutes):
1. Cast net ✓ 2. Gill net ✓ 3. Trap 4. Mosquito cloth ✓ 5. Other methods (specify)	1. one hour - Cast net ① 2. One hour - Gill net ① 3. 2 hours - Gill net ② 4. Mosquitonet - Random 5.
Anomalies recorded in fish (if any): Deformities; Eoded skin; Fungus; Lesions; Multiple anomalies; Enlargement; Others: nil	

FISH MONITORING PROGRAMME (KSBB)**DATA SHEET 2****A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)**

(Use separate sheets for high/mid/low lands)

Name of the River:	BHARATHAPPUZHA UPPER PATCHMENT	
Name of the tributary (if any):	KALPATHYPPUZHA	
Name of survey site: Kalpathyppalam	District and Panchayath: Palakkad dt. Palakkad municipality	
Highland/Midland/Lowland mid land		
GPS Reading (Lat. and Long. (Optional)	Name of Team leader: Dr. K. K. HEMALATHA	
Date: 26.05.2010	Time: 12.45 pm	
Types of nets used:	Sampling duration for each net (minutes):	
1. Cast net ✓	1. Cast net One hr.	
2. Gill net ✓	2. Gill net I One hr.	
3. Trap	3. Gill net II Two hrs.	
4. Mosquito cloth ✓	4. Mosquito net random.	
5. Other methods (specify)	5.	
Anomalies recorded in fish (if any): Deformities; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others nil		

FISH MONITORING PROGRAMME (KSBB)**DATA SHEET 2****B. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)**

(Use separate sheets for high/mid/low lands)

Name of the River:	BHARATHAPUZHA	
Name of the tributary (if any):	CHITTURPUZHA	
Name of survey site:	Parli Chukku	District and Panchayath:
Highland/Midland/Lowland	<input checked="" type="checkbox"/>	Palakkad , Parli Panchayat
GPS Reading (Lat. and Long. (Optional)	Name of Team leader: D.K.K. Hemalatha	
Date:	24 - 05 - 10	Time: 3-30 Pm.
Types of nets used:	Sampling duration for each net (minutes):	
6. Cast net	✓ 1. One hr - Cast net	
7. Gill net	✓ 2. One hr - Gill net 1	
8. Trap	3. Two hrs - Gill net 2	
9. Mosquito cloth	✓ 4. Mosquito net - Random	
10. Other methods (specify)	5.	
Anomalies recorded in fish (if any): Deformities; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others nil		

FISH MONITORING PROGRAMME (KSBB)**DATA SHEET 2****A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)**

(Use separate sheets for high/mid/low lands)

Name of the River:	BHARATHAPUZHA	
Name of the tributary (if any):	GAYATHRIPUZHA	
Name of survey site:	mayannur	District and Panchayath:
Highland/Midland/Lowland	<input checked="" type="checkbox"/>	Palakkad, Mayannur Panchayat
GPS Reading (Lat. and Long. (Optional)	Name of Team leader: D.K.K. Hemalatha	
Date: 27.05.2010	Time: 09 AM	
Types of nets used:	Sampling duration for each net (minutes)	
1. Cast net	✓ 1. One hour Cast	
2. Gill net	✓ 2. One hr Gill net I	
3. Trap	3. Two hrs Gill net II	
4. Mosquito cloth	✓ 4. Mosquito net Random.	
5. Other methods (specify)	5.	
Anomalies recorded in fish (if any): Deformities; Eroded fins; Fungus; Lesions; Multiple anomalies; Emaciated; Others	nil	



FISH MONITORING PROGRAMME (KSBB)

DATA SHEET 2

A. FISH SAMPLING FIELD DATA SHEET (PRIMARY DATA)

(Use separate sheets for high/mid/low levels)

Name of the River:	BHARATHAPUZHA	
Name of the tributary (if any):	KALPATHY PUZHA	
Name of survey site:	Parippalam	
Highland/Mittland/Lowland	Highland	
GPS Reading (Lat. and Long. (Optional))		
Date:	26.05.'10	
Time:	01.30 Pms -	
Types of nets used:	Sampling duration for each net (minutes):	
1. Cast net	✓	1. One hr - Cast net
2. Gill net	✓	2. One hr - Gill net ①
3. Trap		3. Two hrs. - Gill net ②
4. Mosquito cloth	✓	4. Mosquito net - Random
5. Other methods (specify)		5.
Abnormalities recorded in fish (if any): Defecation; Everted rectum; Fungus; Lesions; Multiple anomalies; Emaciated; Others	nil	

Chittarpuzha



A. Primary Data Collection - Diener Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland) - No. of fishes										Total			
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Other Net 1	Other Net 2	Other Net 3	
①	Tilapia	1	1	-	-	-	-	-	-	-	1	-	-	2	
②	P. filamentosus	3	2	-	3	1	-	4	-	7	5	2	-	-	27
③	P. fasciatus	-	-	-	-	-	-	-	-	-	3	4	-	6	
④	Elophorus Sundaicus	2	-	-	-	-	-	-	-	-	2	-	2	8	
⑤	Elophorus sinensis	3	-	-	-	-	-	-	-	-	-	-	-	3	
⑥	Catla catla	-	2	-	-	-	-	-	-	-	-	-	-	2	
⑦	Heteropneustes fossilis	-	-	-	-	-	-	-	-	-	1	-	1	2	
⑧	Wallago attu (tm)	-	-	-	1	-	-	-	-	-	-	4	-	4	
⑨	Mystus carpio	-	-	-	-	1	-	-	-	-	3	-	5	8	
⑩	Channa (hobbita)	-	-	-	-	-	-	-	-	-	>150	-	-	>150	
11	Rasbora daniconius	-	2	-	-	-	2	-	-	-	4	3	-	8	
12	Garramulappa	-	-	-	-	-	-	-	-	-	1	5	-	6	
13	Banivilugalaensis	-	-	-	-	-	-	-	-	-	-	12	-	12	
14	Parambassis thomasi	-	-	-	-	-	-	-	-	-	1	-	1	2	
15	Clarias dasypuntif	-	-	-	-	-	-	-	-	-	2	-	-	2	
16	Lepidcephalichthys thermalis	-	-	-	-	-	-	-	-	-	2	-	-	2	
	Acanthopharyngodon midas leporinus	-	4	9	3	6	-	9	1	12	-	4	21	3	71

Gayathri^o



A. Primary Data Collection - Direct Sampling

St. No.	Fish Species	Station I (Highland) / Station II (Midland) / Station III (Lowland) - No. of fishes										Total		
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Gill Net 1	Gill Net 2	Gill Net 3
①	Bhawani's anabatids	-	-	-	-	-	-	-	-	-	-	15	-	15
②	Percinidae labeocatla	-	-	-	-	-	-	-	-	-	-	4	-	4
③	Puntius fasciatus	4	2	2	1	4	6	2	4	2	4	-	30	
	"	-	-	-	-	-	-	-	-	4	-	-	4	
	"	3	2	-	-	-	-	-	-	-	2	-	7	
④	Puntius fasciatus	-	-	-	-	-	-	-	-	-	11	-	11	
⑤	Ethiopius Smalls	4	-	-	-	-	-	-	-	-	-	-	4	
⑥	Channa (hatty)	-	-	-	-	-	-	-	-	-	numerous	numerous		
⑦	H. fossilis	-	-	-	-	1	-	-	-	3	-	-	4	
8	Amblypharyngodon microlepis	-	3	-	5	-	2	1	1	2	2	17	2	35
9	Garra rufa	-	-	-	-	-	-	-	-	1	2	1	4	
10	Lepidocassis lachneri	-	-	-	-	-	-	-	-	1	6	1	8	
11	Claarias batrachus	-	-	-	-	-	-	-	-	1	1	1	3	
12	Bonitas goetzei	6	-	-	1	-	2	-	4	2	4	1	20	

Kalpathy pushpa

A. Primary Data Collection – Direct Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland)										Total			
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Gill Net 1	Gill Nets II Other Nets 2	Other Nets 3	
1	<i>D. filamentosus</i>	3	2	-	-	5	-	-	3	3	2	1	3	24	
2	<i>P. fasciatus</i>	-	-	-	-	-	-	-	1	-	1	1	18	20	
3	<i>Catla catla</i>	-	-	2	-	-	-	-	-	-	-	-	-	2	
4	<i>H. fossilis</i>	-	-	-	-	-	-	-	-	-	1	-	-	1	
5	<i>Barioius gasterurus</i>	-	-	3	-	1	-	3	-	-	4	-	2	13	
6	<i>Amblypharyngodon thermalis</i>	-	-	-	3	2	4	-	1	1	3	1	1	18	34
7	<i>Rasbora daniconius</i>	-	-	-	-	-	-	-	-	1	-	1	8	10	
8	<i>Mystus canes</i>	-	-	-	-	-	1	-	-	-	1	1	-	2	
9	<i>Labeo rohita</i>	-	-	-	-	-	-	1	-	-	-	-	-	1	
10	<i>Garra rufa</i>	-	-	-	-	-	-	1	-	-	-	-	6	6	
11	<i>Tilapia</i>	-	-	-	2	-	-	-	-	-	1	-	-	3	
12	<i>Clarias dugesii</i>	-	-	-	-	-	-	-	-	-	-	1	-	1	
13	<i>Channa striatus</i>	-	-	-	-	-	-	-	-	-	1	-	-	1	
14	<i>Parambassis kiramai</i>	-	-	-	-	1	-	-	1	-	-	-	-	2	

Chittarpuzha



A. Primary Data Collection – Direct Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland) - No. of fishes													
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Gill Net 1	Other Nets 1				
①	Punti filamentous	-	8	2	9	6	8	-	-	4	6	3	-	1	47
②	Etrephus suratensis	-	-	-	3	-	-	-	-	-	-	-	2	5	
③	Ran filamentous	-	-	-	2	3	-	-	-	-	-	-	3	8	
④	Channal hatching	-	-	-	-	-	-	-	-	-	numerous	numerous			
⑤	Mystus cavally	-	-	3	-	-	-	1	-	3	1	1	9		
⑥	P. fasciatus	-	-	-	-	-	-	-	-	-	12		12		
⑦	Barioius galteensis	-	-	1	1	1	-	-	-	3	4	2	9		
⑧	Eel	-	-	-	-	-	-	-	-	3	-	-	3		
⑩	Wallego atta	-	-	-	-	1	-	-	-	-	-	-	1		
⑪	Trileapia	-	-	-	3	-	-	-	-	6	-	6	15		
⑫	Resbara clarkeensis	-	2	-	-	3	-	3	-	2	4	4	18		
⑬	Clarias dussumieri	-	-	-	-	-	-	1	-	1	1	1	4		
14	Garra rufa	-	-	-	-	-	-	-	-	1	2	-	3		
15	Abrudopharyngodon microlepis	-	4	3	5	1	-	6	2	6	27	3	57		

Grayathri.



A. Primary Data Collection – Direct Sampling

Sl.	Fish Species	Station I (Highland) / Station II (Midland) ✓ / Station III (Lowland) - No. of fishes										Total				
		Cast No. 1	Cast No. 2	Cast No. 3	Cast No. 4	Cast No. 5	Cast No. 6	Cast No. 7	Cast No. 8	Cast No. 9	Cast No. 10	Grit No. 1	Cast No. 11	Cast No. 12	Other Nos. 2	Others Nos. 3
①	<i>P. filamentosus</i>	6	-	3	4	3	2	-	2	6	8	1	5			40
④	<i>Etrumeus suratensis</i>	-	-	-	-	-	2	-	-	-	-	2	2	-		6
③	<i>Walleye atlanticus</i>	-	-	-	-	-	-	-	-	-	-	-	1	2		3
④	<i>Channa (fay)</i>	-	-	-	-	-	-	1	1	1	1	-	>150		>150	
⑤	<i>Puntius filamentosus</i>	-	-	-	-	4	-	-	-	-	-	-	-	-		4
⑥	<i>P. fasciatus</i>	-	-	-	-	-	-	-	-	-	-	5	5	13		23
⑦	<i>Moenchichthys triangularis</i>	-	-	-	-	-	-	-	-	-	-	-	-	1		1
8	<i>Tilapia</i>	-	-	-	2	-	-	-	-	-	-	1	1			4
9	<i>Gazza mullya</i>	-	-	-	-	-	-	-	-	-	2	2	1		5	
10	<i>Lepidodactylus</i> <i>thermosalis</i>	-	-	-	-	-	-	-	-	-	3	4	2		9	
11	<i>Clarias chrysophekadion</i>	-	-	-	-	-	-	-	-	-	1	1	2		4	
12	<i>Mystus vittatus</i>	-	-	-	-	-	-	-	-	-	-	-	-		2	
13	<i>Channa striatus</i>	-	-	-	-	-	-	-	-	-	2	-	1		3	
14	<i>Parambassis</i> <i>maculatus</i>	-	-	-	-	-	1	-	-	-	2	1	1		5	
15	<i>Anablepsopharyngodon</i> <i>microlepis</i>	3	-	4	-	2	8	-	1	1	25				44	
16	<i>Rachycentron canadum</i>	11	-	2	1	2	4	1	1	1	1	-			14	
17	<i>Bario</i> <i>guttatus</i>				1			1	2	2	2	1			9	

Kalpathyprasha



A. Primary Data Collection - Direct Sampling

St. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland) - No. of fishes										Total
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	
①	P. fasciatus	-	-	-	-	-	-	-	-	-	-	12
②	Catla catla	-	-	-	-	-	-	-	-	-	2	
③	Labeo rohita	-	-	-	-	-	-	-	-	1	1	2
④	Wolffia Attu	-	-	-	-	-	-	-	-	-	1	1
⑤	Eel	-	-	-	-	-	-	-	-	-	-	2
⑥	Puntius filamentosus	-	-	-	-	-	-	-	-	18	9	27
7	Mrigal	-	-	-	-	-	-	-	-	1	-	1
8	H. fossilis	-	-	-	-	-	-	-	-	2	1	5
9	Etmopterus luciferus	-	-	-	-	-	-	-	-	1	-	2
10	Tilapia	-	-	-	-	-	-	-	-	1	1	3
11	Amphilophus labiatus	-	-	-	-	-	-	-	-	4	3	33
	mitrocephalus	-	-	-	-	-	-	-	-	-	-	
12	Batrachoides gaterinus	-	-	-	-	-	-	-	-	2	1	7
13	Clarias chrysophekadion	-	-	-	-	-	-	-	-	1	2	4
14	Mystus vittatus	-	-	-	-	-	-	-	-	1	1	2
15	Gasterosteus aculeatus	-	-	-	-	-	-	-	-	2	-	2

Chittapurha

C. Primary Data Collection – Direct Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland) ✓										Total			
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Gill Net 1	M	Gill Net 2	Other Nets 3
1.	D. filamentosus -	-	-	-	-	-	-	-	-	2	12	6	20		
2.	P. fasciatum									6	12	4	22		
3.	Eel (Small)									1	-	-	1		
4.	Catla catla									2	-	-	2		
5.	Labeo rohita									1	-	-	1		
6.	Tilapia									3	-	-	3		
7.	Ambly. microlepis									14	12	6	32		
8.	Barbodes galloisi									2	8	4	14		
9.	Mallaya attu (small)									1	-	-	1		
10.	Craterocephalus									2	1	3	6		
11.	Mystus canescens									1	3	-	1		
12.	H. fossilis (small)									1	-	-	1		

Gayathri pusha

A. Primary Data Collection – Direct Sampling

Kalpathypushka



A. Primary Data Collection – Direct Sampling

Sl. No.	Fish Species	Station I (Highland)/ Station II (Midland)/ Station III (Lowland)										No. of fishes Total		
		Cast Net 1	Cast Net 2	Cast Net 3	Cast Net 4	Cast Net 5	Cast Net 6	Cast Net 7	Cast Net 8	Cast Net 9	Cast Net 10	Gill Net 1	Gill Net 2	Gill Net 3
1	<i>Catla catla</i>	-	-	-	-	-	-	-	-	-	1	-	-	1
2	<i>Labeo rohit</i>	-	-	-	-	-	-	-	-	-	-	-	-	1
3	<i>Sifacellatus</i>	-	-	-	-	-	-	-	-	-	-	1	12	13
4	<i>P. filamentosa</i>	-	-	-	-	-	-	-	-	6	4	10	20	
5	<i>Mystus vittatus</i>	-	-	-	-	-	-	-	-	-	-	-	3	3
6	<i>H. fossilis</i>	-	-	-	-	-	-	-	-	-	1	-	1	2
7	<i>Etheostoma smilacina</i>	-	-	-	-	-	-	-	-	3	2	1	6	
8	<i>Wallago attu</i>	-	-	-	-	-	-	-	-	-	1	-	-	1
9	<i>Mystus caeruleus</i>	-	-	-	-	-	-	-	-	-	1	6	7	
10	<i>Tilapia</i>	-	-	-	-	-	-	-	-	3	2	2	7	
11	<i>Bario galensis</i>	-	-	-	-	-	-	-	-	2	2	2	6	
12	<i>Hypseleotris limbatus</i>	-	-	-	-	-	-	-	-	1	1	1	2	
13	<i>Amphibichthys microlepis</i>	-	-	-	-	-	-	-	-	5	7	31	46	
14	<i>Rasbora daniconius</i>	-	-	-	-	-	-	-	-	2	2	4	8	

Chittarpurtha

D. Primary Data Collection – Market Survey

(Use separate sheets for high/mid/low lands)

No riverine fishes were noticed in the market-

Gigathin®

B. Primary Data Collection – Market Survey

(Use separate sheets for high/mid/low lands)

^{Riverine}
No fishes were observed in the market.

ANNEXURE: DATA SHEETS

Kalpathypurtha

D. Primary Data Collection - Market Survey

(20 questionnaires were distributed among 100 fishers)

Sl.	Fish Species / Group	Market Analysis (No. of Fishes)												
		Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10	Sample 11	Sample 12	Total
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														

No riverine fish were seen in the market. Fresh water fishes from Malampuzha Dam and from Cuttaring agencies were sold in the market.

Chittarpurha



Secondary Data Collection – Historical Data

(Use separate sheet for high/med/low flows.)

Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	For fish, Drinking water, Irrigation
2	The number of fisheries dependent on fishing in the sampling area.	Nobody is doing fishing as a job. People catch fish for their own need.
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same. (use separate sheet, if needed)	Yes. Sand mining causes the water level decrease in well & ground water level. That leads to the vegetation of large plants throughout the riverbed. Encroachment decreases the river area.
4	List (local names) of fish available in the river system. (use separate sheet, if needed)	Gorai, Chingri, Bagri, Barb, Gour, Bhutia, Chitala, Catla, Rohu, Tilapia, etc.
5	The species (mainly fish) that have declined in availability (abundance)	Bel
6	The species (mainly fish) that are more common in the area and disappeared recently	not noticed
7	Is there any new addition of flora and fauna in the region (e.g. Exotic fish, fish eating birds, etc.)	Gray Wag Tail migratory bird
8	Is there any major change in habitat structure? If yes, list them	Abundant Vegetation, Sand mining, Water present in ditches and pool like areas
9	Is there any animal that dependent on the river (e.g. Otter) disappeared in recent times	Not observed
10	What are the common fishing practices available in the region?	Hook, gill net use
11	Is there any unscientific methods practiced (e.g. Dynamiting, poisoning, mukham kuthi, etc.)	not noticed
12	Any fish disease outbreak observed till date?	not noticed
13	Any traditional knowledge on fish available in the area	no
14	Suggestions on conservation of fish (as perceived by the local communities)	Restrict Sand mining and deforestation.

Grayathⁿ

Secondary Data Collection - Historical Data
(Use separate sheets for high/mid/low areas)



Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	For irrigation agriculture etc easily available water Due to the easy availability of water
2	The number of fishermen dependent on fishing in the sampling area	none
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same, (use separate sheet, if needed)	Water quantity is reduced at present. May be due to lack of rain in the forest
4	List (local names) of fish available in the river system (use separate sheet, if needed)	230giri, 248giri, 202giri, 210giri, 240giri, 242giri
5	The species (mainly fish) that have declined in availability (abundance)	2girib (Puntius filamentosus)
6	The species (mainly fish) that are now common in the area and disappeared recently	nil
7	Is there any new addition of flora and fauna in the region (eg. Exotic fish, fish eating birds, etc.)	no
8	Is there any major change in habitat structure? If yes, list them	Yes. Due to anthropogenic activities like any other region plastic bottles & cups are dumped in this region also.
9	Is there any animal that depended on the river (eg. Otter) disappeared in recent times	not noted
10	What are the common fishing practices available in the region?	It is not a fishing area
11	Is there any unscientific methods practiced (eg. Dynamiting, poisoning, sulphuric acid, etc.)	nil
12	Any fish disease outbreak observed till date?	nil
13	Any traditional knowledge on fish availability in the area.	nil
14	Suggestions on conservation of fish (as perceived by the local communities)	Protect in area in all sense. People who violate the rules should be punished.

Kalpathy-pasha

Secondary Data Collection - Historical Data

(Use separate sheets for fish/mill/tour details)



Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	For fish, agriculture and other anthropogenic activities
2	The number of fishermen depended on fishing in the sampling area	No such group was observed. Here people do fishing for daily use.
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same. (use separate sheet, if needed)	Yes. Due to vegetation, erosion, encroachment, sand mining and due to poor availability of rain, water quantity and fish availability are decreased.
4	List (local names) of fish available in the river system (use separate sheet, if needed)	Guggi, Pomfret, Catla, Chital, Bagre, Chingri, Chital, Gheria, King, King, Chital, Chital, Chital, King
5	The species (mainly fish) that have declined in availability (abundance)	Bhitroo, Sel, Heteropneustes, Wallago attu
6	The species (mainly fish) that are more common in the area and disappeared recently	not known
7	Is there any new addition of flora and fauna in the region (e.g. exotic fish, fish eating birds, etc.)	Not observed
8	Is there any major change in habitat structure? If yes, list them	Yes. Fall of vegetation and sand mining, the riverine bank is totally changed and we could not even see boat ride for fishing.
9	Is there any animal that dependent on the river (e.g. Otter) disappeared in recent times	not noticed
10	What are the common fishing practices available in the region?	Hacking & Gill net
11	Is there any unscientific methods practised (e.g. Dynamiting, poisoning, industrial solid waste, etc.)	not noticed
12	Any fish diseases outbreak observed till date?	no
13	Any traditional knowledge on fish available in the area	no
14	Suggestions on conservation of fish (as perceived by the local communities)	Here the River is completely destroyed - due to Sand mining. It should be checked by Law. Strong punishment to those who violate laws. Save our Rivers

C. Secondary Data Collection – Historical Data

(Use separate sheets for high/mid/low lands)

Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	For fishing, for drinking water Bathing
2	The number of fishermen depended on fishing in the sampling area	People catch fish for their daily use.
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same.	Yes. Now the river is full of vegetation, erosion and sand mining also heavy. River bed is filled with ditches filled with clay.
4	List (local names) of fish available in the river system	Omang, Omard, Gharib, Mora, Dhaab, Chital, Ganga, Mahe, Kali, Kheri, Gora (Gorai), Bojh, Ghora, Kori, Dhu, Goli, Ghore, Ghore
5	The species (mainly fish) that have declined in availability (abundance)	Eel, Etenghing, Wallago atta, Channa
6	The species (mainly fish) that are once common in the area and disappeared recently	not known
7	Is there any new addition of flora and fauna in the region (eg. Exotic fish, fish eating birds, etc)	migratory Gray wagtail bird
8	Is there any major change in habitat structure? If yes, list them	Fall Vegetation Sand mining
9	Is there any animal that dependent on the river (eg. Otter) disappeared in recent times	Otter present. But people from outside Coorg come and kill them in large scale and now the number very much decreased
10	What are the common fishing practices available in the region?	Hook, cast net, gill net and drift bridge region use the large fishing net.
11	Is there any unscientific methods practised	

	(eg. Dynamiting, poisoning, <i>adakkam kolli vala</i> , etc.)	<i>not noticed</i>
12	Any traditional knowledge on fish available in the area	<i>no</i>
13	Suggestions on conservation of fish (as perceived by the local communities)	<i>Restrict sand mining that destroys the river bed.</i>

Secondary Data Collection - Historical Data



(Use separate sheets for high/mid/low trends)

Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	For Agriculture, fish and other anthropogenic activities.
2	The number of fishermen depended on fishing in the sampling area	No such group was noticed.
3	Is there any change in the services (water including ground water, sand, flats) offered by the river over the years? If yes, reasons for the same. (use separate sheet, if needed)	Yes. Due to sand mining, dumping of butchery wastes in the river and due to vegetation.
4	List (local names) of fish available in the river system (use separate sheet, if needed)	Guris, Chingad, mura, mung, 2mang, 2m2, 3m2, 3m3, 2m4, 2m5, 2m6, 2m7, 2m8, 2m9, 2m10, 2m11, 2m12, 2m13, 2m14, 2m15, 2m16, 2m17, 2m18, 2m19, 2m20, 2m21, 2m22, 2m23, 2m24, 2m25, 2m26, 2m27, 2m28, 2m29, 2m30, 2m31, 2m32, 2m33, 2m34, 2m35, 2m36, 2m37, 2m38, 2m39, 2m40, 2m41, 2m42, 2m43, 2m44, 2m45, 2m46, 2m47, 2m48, 2m49, 2m50, 2m51, 2m52, 2m53, 2m54, 2m55, 2m56, 2m57, 2m58, 2m59, 2m60, 2m61, 2m62, 2m63, 2m64, 2m65, 2m66, 2m67, 2m68, 2m69, 2m70, 2m71, 2m72, 2m73, 2m74, 2m75, 2m76, 2m77, 2m78, 2m79, 2m80, 2m81, 2m82, 2m83, 2m84, 2m85, 2m86, 2m87, 2m88, 2m89, 2m90, 2m91, 2m92, 2m93, 2m94, 2m95, 2m96, 2m97, 2m98, 2m99, 2m100, 2m101, 2m102, 2m103, 2m104, 2m105, 2m106, 2m107, 2m108, 2m109, 2m110, 2m111, 2m112, 2m113, 2m114, 2m115, 2m116, 2m117, 2m118, 2m119, 2m120, 2m121, 2m122, 2m123, 2m124, 2m125, 2m126, 2m127, 2m128, 2m129, 2m130, 2m131, 2m132, 2m133, 2m134, 2m135, 2m136, 2m137, 2m138, 2m139, 2m140, 2m141, 2m142, 2m143, 2m144, 2m145, 2m146, 2m147, 2m148, 2m149, 2m150, 2m151, 2m152, 2m153, 2m154, 2m155, 2m156, 2m157, 2m158, 2m159, 2m160, 2m161, 2m162, 2m163, 2m164, 2m165, 2m166, 2m167, 2m168, 2m169, 2m170, 2m171, 2m172, 2m173, 2m174, 2m175, 2m176, 2m177, 2m178, 2m179, 2m180, 2m181, 2m182, 2m183, 2m184, 2m185, 2m186, 2m187, 2m188, 2m189, 2m190, 2m191, 2m192, 2m193, 2m194, 2m195, 2m196, 2m197, 2m198, 2m199, 2m200, 2m201, 2m202, 2m203, 2m204, 2m205, 2m206, 2m207, 2m208, 2m209, 2m210, 2m211, 2m212, 2m213, 2m214, 2m215, 2m216, 2m217, 2m218, 2m219, 2m220, 2m221, 2m222, 2m223, 2m224, 2m225, 2m226, 2m227, 2m228, 2m229, 2m230, 2m231, 2m232, 2m233, 2m234, 2m235, 2m236, 2m237, 2m238, 2m239, 2m240, 2m241, 2m242, 2m243, 2m244, 2m245, 2m246, 2m247, 2m248, 2m249, 2m250, 2m251, 2m252, 2m253, 2m254, 2m255, 2m256, 2m257, 2m258, 2m259, 2m260, 2m261, 2m262, 2m263, 2m264, 2m265, 2m266, 2m267, 2m268, 2m269, 2m270, 2m271, 2m272, 2m273, 2m274, 2m275, 2m276, 2m277, 2m278, 2m279, 2m280, 2m281, 2m282, 2m283, 2m284, 2m285, 2m286, 2m287, 2m288, 2m289, 2m290, 2m291, 2m292, 2m293, 2m294, 2m295, 2m296, 2m297, 2m298, 2m299, 2m300, 2m301, 2m302, 2m303, 2m304, 2m305, 2m306, 2m307, 2m308, 2m309, 2m310, 2m311, 2m312, 2m313, 2m314, 2m315, 2m316, 2m317, 2m318, 2m319, 2m320, 2m321, 2m322, 2m323, 2m324, 2m325, 2m326, 2m327, 2m328, 2m329, 2m330, 2m331, 2m332, 2m333, 2m334, 2m335, 2m336, 2m337, 2m338, 2m339, 2m340, 2m341, 2m342, 2m343, 2m344, 2m345, 2m346, 2m347, 2m348, 2m349, 2m350, 2m351, 2m352, 2m353, 2m354, 2m355, 2m356, 2m357, 2m358, 2m359, 2m360, 2m361, 2m362, 2m363, 2m364, 2m365, 2m366, 2m367, 2m368, 2m369, 2m370, 2m371, 2m372, 2m373, 2m374, 2m375, 2m376, 2m377, 2m378, 2m379, 2m380, 2m381, 2m382, 2m383, 2m384, 2m385, 2m386, 2m387, 2m388, 2m389, 2m390, 2m391, 2m392, 2m393, 2m394, 2m395, 2m396, 2m397, 2m398, 2m399, 2m400, 2m401, 2m402, 2m403, 2m404, 2m405, 2m406, 2m407, 2m408, 2m409, 2m410, 2m411, 2m412, 2m413, 2m414, 2m415, 2m416, 2m417, 2m418, 2m419, 2m420, 2m421, 2m422, 2m423, 2m424, 2m425, 2m426, 2m427, 2m428, 2m429, 2m430, 2m431, 2m432, 2m433, 2m434, 2m435, 2m436, 2m437, 2m438, 2m439, 2m440, 2m441, 2m442, 2m443, 2m444, 2m445, 2m446, 2m447, 2m448, 2m449, 2m450, 2m451, 2m452, 2m453, 2m454, 2m455, 2m456, 2m457, 2m458, 2m459, 2m460, 2m461, 2m462, 2m463, 2m464, 2m465, 2m466, 2m467, 2m468, 2m469, 2m470, 2m471, 2m472, 2m473, 2m474, 2m475, 2m476, 2m477, 2m478, 2m479, 2m480, 2m481, 2m482, 2m483, 2m484, 2m485, 2m486, 2m487, 2m488, 2m489, 2m490, 2m491, 2m492, 2m493, 2m494, 2m495, 2m496, 2m497, 2m498, 2m499, 2m500, 2m501, 2m502, 2m503, 2m504, 2m505, 2m506, 2m507, 2m508, 2m509, 2m510, 2m511, 2m512, 2m513, 2m514, 2m515, 2m516, 2m517, 2m518, 2m519, 2m520, 2m521, 2m522, 2m523, 2m524, 2m525, 2m526, 2m527, 2m528, 2m529, 2m530, 2m531, 2m532, 2m533, 2m534, 2m535, 2m536, 2m537, 2m538, 2m539, 2m540, 2m541, 2m542, 2m543, 2m544, 2m545, 2m546, 2m547, 2m548, 2m549, 2m550, 2m551, 2m552, 2m553, 2m554, 2m555, 2m556, 2m557, 2m558, 2m559, 2m560, 2m561, 2m562, 2m563, 2m564, 2m565, 2m566, 2m567, 2m568, 2m569, 2m570, 2m571, 2m572, 2m573, 2m574, 2m575, 2m576, 2m577, 2m578, 2m579, 2m580, 2m581, 2m582, 2m583, 2m584, 2m585, 2m586, 2m587, 2m588, 2m589, 2m589, 2m590, 2m591, 2m592, 2m593, 2m594, 2m595, 2m596, 2m597, 2m598, 2m599, 2m600, 2m601, 2m602, 2m603, 2m604, 2m605, 2m606, 2m607, 2m608, 2m609, 2m610, 2m611, 2m612, 2m613, 2m614, 2m615, 2m616, 2m617, 2m618, 2m619, 2m620, 2m621, 2m622, 2m623, 2m624, 2m625, 2m626, 2m627, 2m628, 2m629, 2m630, 2m631, 2m632, 2m633, 2m634, 2m635, 2m636, 2m637, 2m638, 2m639, 2m640, 2m641, 2m642, 2m643, 2m644, 2m645, 2m646, 2m647, 2m648, 2m649, 2m650, 2m651, 2m652, 2m653, 2m654, 2m655, 2m656, 2m657, 2m658, 2m659, 2m660, 2m661, 2m662, 2m663, 2m664, 2m665, 2m666, 2m667, 2m668, 2m669, 2m670, 2m671, 2m672, 2m673, 2m674, 2m675, 2m676, 2m677, 2m678, 2m679, 2m680, 2m681, 2m682, 2m683, 2m684, 2m685, 2m686, 2m687, 2m688, 2m689, 2m689, 2m690, 2m691, 2m692, 2m693, 2m694, 2m695, 2m696, 2m697, 2m698, 2m699, 2m700, 2m701, 2m702, 2m703, 2m704, 2m705, 2m706, 2m707, 2m708, 2m709, 2m709, 2m710, 2m711, 2m712, 2m713, 2m714, 2m715, 2m716, 2m717, 2m718, 2m719, 2m719, 2m720, 2m721, 2m722, 2m723, 2m724, 2m725, 2m726, 2m727, 2m728, 2m729, 2m729, 2m730, 2m731, 2m732, 2m733, 2m734, 2m735, 2m736, 2m737, 2m738, 2m739, 2m739, 2m740, 2m741, 2m742, 2m743, 2m744, 2m745, 2m746, 2m747, 2m748, 2m749, 2m749, 2m750, 2m751, 2m752, 2m753, 2m754, 2m755, 2m756, 2m757, 2m758, 2m759, 2m759, 2m760, 2m761, 2m762, 2m763, 2m764, 2m765, 2m766, 2m767, 2m768, 2m769, 2m769, 2m770, 2m771, 2m772, 2m773, 2m774, 2m775, 2m776, 2m777, 2m778, 2m778, 2m779, 2m779, 2m780, 2m781, 2m782, 2m783, 2m784, 2m785, 2m786, 2m787, 2m788, 2m788, 2m789, 2m789, 2m790, 2m791, 2m792, 2m793, 2m794, 2m795, 2m796, 2m797, 2m798, 2m798, 2m799, 2m799, 2m800, 2m801, 2m802, 2m803, 2m804, 2m805, 2m806, 2m807, 2m808, 2m809, 2m809, 2m810, 2m811, 2m812, 2m813, 2m814, 2m815, 2m816, 2m817, 2m818, 2m818, 2m819, 2m819, 2m820, 2m821, 2m822, 2m823, 2m824, 2m825, 2m826, 2m827, 2m828, 2m829, 2m829, 2m830, 2m831, 2m832, 2m833, 2m834, 2m835, 2m836, 2m837, 2m838, 2m838, 2m839, 2m839, 2m840, 2m841, 2m842, 2m843, 2m844, 2m845, 2m846, 2m847, 2m848, 2m848, 2m849, 2m849, 2m850, 2m851, 2m852, 2m853, 2m854, 2m855, 2m856, 2m857, 2m858, 2m858, 2m859, 2m859, 2m860, 2m861, 2m862, 2m863, 2m864, 2m865, 2m866, 2m867, 2m868, 2m868, 2m869, 2m869, 2m870, 2m871, 2m872, 2m873, 2m874, 2m875, 2m876, 2m877, 2m877, 2m878, 2m878, 2m879, 2m879, 2m880, 2m881, 2m882, 2m883, 2m884, 2m885, 2m886, 2m887, 2m887, 2m888, 2m888, 2m889, 2m889, 2m890, 2m891, 2m892, 2m893, 2m894, 2m895, 2m896, 2m897, 2m897, 2m898, 2m898, 2m899, 2m899, 2m900, 2m901, 2m902, 2m903, 2m904, 2m905, 2m906, 2m907, 2m908, 2m908, 2m909, 2m909, 2m910, 2m911, 2m912, 2m913, 2m914, 2m915, 2m916, 2m917, 2m918, 2m918, 2m919, 2m919, 2m920, 2m921, 2m922, 2m923, 2m924, 2m925, 2m926, 2m927, 2m928, 2m928, 2m929, 2m929, 2m930, 2m931, 2m932, 2m933, 2m934, 2m935, 2m936, 2m937, 2m937, 2m938, 2m938, 2m939, 2m939, 2m940, 2m941, 2m942, 2m943, 2m944, 2m945, 2m946, 2m947, 2m948, 2m948, 2m949, 2m949, 2m950, 2m951, 2m952, 2m953, 2m954, 2m955, 2m956, 2m957, 2m958, 2m958, 2m959, 2m959, 2m960, 2m961, 2m962, 2m963, 2m964, 2m965, 2m966, 2m967, 2m967, 2m968, 2m968, 2m969, 2m969, 2m970, 2m971, 2m972, 2m973, 2m974, 2m975, 2m976, 2m977, 2m977, 2m978, 2m978, 2m979, 2m979, 2m980, 2m981, 2m982, 2m983, 2m984, 2m985, 2m986, 2m987, 2m987, 2m988, 2m988, 2m989, 2m989, 2m990, 2m991, 2m992, 2m993, 2m994, 2m995, 2m996, 2m997, 2m997, 2m998, 2m998, 2m999, 2m999, 2m1000, 2m1001, 2m1002, 2m1003, 2m1004, 2m1005, 2m1006, 2m1007, 2m1008, 2m1008, 2m1009, 2m1009, 2m1010, 2m1011, 2m1012, 2m1013, 2m1014, 2m1015, 2m1016, 2m1017, 2m1017, 2m1018, 2m1018, 2m1019, 2m1019, 2m1020, 2m1021, 2m1022, 2m1023, 2m1024, 2m1025, 2m1026, 2m1027, 2m1028, 2m1028, 2m1029, 2m1029, 2m1030, 2m1031, 2m1032, 2m1033, 2m1034, 2m1035, 2m1036, 2m1037, 2m1037, 2m1038, 2m1038, 2m1039, 2m1039, 2m1040, 2m1041, 2m1042, 2m1043, 2m1044, 2m1045, 2m1046, 2m1047, 2m1047, 2m1048, 2m1048, 2m1049, 2m1049, 2m1050, 2m1051, 2m1052, 2m1053, 2m1054, 2m1055, 2m1056, 2m1057, 2m1058, 2m1058, 2m1059, 2m1059, 2m1060, 2m1061, 2m1062, 2m1063, 2m1064, 2m1065, 2m1066, 2m1067, 2m1067, 2m1068, 2m1068, 2m1069, 2m1069, 2m1070, 2m1071, 2m1072, 2m1073, 2m1074, 2m1075, 2m1076, 2m1077, 2m1077, 2m1078, 2m1078, 2m1079, 2m1079, 2m1080, 2m1081, 2m1082, 2m1083, 2m1084, 2m1085, 2m1086, 2m1087, 2m1087, 2m1088, 2m1088, 2m1089, 2m1089, 2m1090, 2m1091, 2m1092, 2m1093, 2m1094, 2m1095, 2m1096, 2m1097, 2m1097, 2m1098, 2m1098, 2m1099, 2m1099, 2m1100, 2m1101, 2m1102, 2m1103, 2m1104, 2m1105, 2m1106, 2m1107, 2m1107, 2m1108, 2m1108, 2m1109, 2m1109, 2m1110, 2m1111, 2m1112, 2m1113, 2m1114, 2m1115, 2m1116, 2m1117, 2m1117, 2m1118, 2m1118, 2m1119, 2m1119, 2m1120, 2m1121, 2m1122, 2m1123, 2m1124, 2m1125, 2m1126, 2m1127, 2m1127, 2m1128, 2m1128, 2m1129, 2m1129, 2m1130, 2m1131, 2m1132, 2m1133, 2m1134, 2m1135, 2m1136, 2m1137, 2m1137, 2m1138, 2m1138, 2m1139, 2m1139, 2m1140, 2m1141, 2m1142, 2m1143, 2m1144, 2m1145, 2m1146, 2m1147, 2m1147, 2m1148, 2m1148, 2m1149, 2m1149, 2m1150, 2m1151, 2m1152, 2m1153, 2m1154, 2m1155, 2m1156, 2m1157, 2m1158, 2m1158, 2m1159, 2m1159, 2m1160, 2m1161, 2m1162, 2m1163, 2m1164, 2m1165, 2m1166, 2m1167, 2m1167, 2m1168, 2m1168, 2m1169, 2m1169, 2m1170, 2m1171, 2m1172, 2m1173, 2m1174, 2m1175, 2m1176, 2m1177, 2m1177, 2m1178, 2m1178, 2m1179, 2m1179, 2m1180, 2m1181, 2m1182, 2m1183, 2m1184, 2m1185, 2m1186, 2m1187, 2m1187, 2m1188, 2m1188, 2m1189, 2m1189, 2m1190, 2m1191, 2m1192, 2m1193, 2m1194, 2m1195, 2m1196, 2m1197, 2m1197, 2m1198, 2m1198, 2m1199, 2m1199, 2m1200, 2m1201, 2m1202, 2m1203, 2m1204, 2m1205, 2m1206, 2m1207, 2m1207, 2m1208, 2m1208, 2m1209, 2m1209, 2m1210, 2m1211, 2m1212, 2m1213, 2m1214, 2m1215, 2m1216, 2m1217, 2m1217, 2m1218, 2m1218, 2m1219, 2m1219, 2m1220, 2m1221, 2m1222, 2m1223, 2m1224, 2m1225, 2m1226, 2m1227, 2m1227, 2m1228, 2m1228, 2m1229, 2m1229, 2m1230, 2m1231, 2m1232, 2m1233, 2m1234, 2m1235, 2m1236, 2m1237, 2m1237, 2m1238, 2m1238, 2m1239, 2m1239, 2m1240, 2m1241, 2m1242, 2m1243, 2m1244, 2m1245, 2m1246, 2m1247, 2m1247, 2m1248, 2m1248, 2m1249, 2m1249, 2m1250, 2m1251, 2m1252, 2m1253, 2m1254, 2m1255, 2m1256, 2m1257, 2m1258, 2m1258, 2m1259, 2m1259, 2m1260, 2m1261, 2m1262, 2m1263, 2m1264, 2m1265, 2m1266, 2m1267, 2m1267, 2m1268, 2m1268, 2m1269, 2m1269, 2m1270, 2m1271, 2m1272, 2m1273, 2m1274, 2m1275, 2m1276, 2m1277, 2m1277, 2m1278, 2m1278, 2m1279, 2m1279, 2m1280, 2m1281, 2m1282, 2m1283, 2m1284, 2m1285, 2m1286, 2m1287, 2m1287, 2m1288, 2m1288, 2m1289, 2m1289, 2m1290, 2m1291, 2m1292, 2m1293, 2m1294, 2m1295, 2m1296, 2m1297, 2m1297, 2m1298, 2m1298, 2m1299, 2m1299, 2m1300, 2m1301, 2m1302, 2m1303, 2m1304, 2m1305, 2m1306, 2m1307, 2m1307, 2m1308, 2m1308, 2m1309, 2m1309, 2m1310, 2m1311, 2m1312, 2m1313, 2m1314, 2m1315, 2m1316, 2m1317, 2m1317, 2m1318, 2m1318, 2m1319, 2m1319, 2m1320, 2m1321, 2m1322, 2m1323, 2m1324, 2m1325, 2m1326, 2m1327, 2m1327, 2m1328, 2m1328, 2m1329, 2m1329, 2m1330, 2m1331, 2m1332, 2m1333, 2m1334, 2m1335, 2m1336, 2m1337, 2m1337, 2m1338, 2m1338, 2m1339, 2m1339, 2m1340, 2m1341, 2m1342, 2m1343, 2m1344, 2m1345, 2m1346, 2m1347, 2m1347, 2m1348, 2m1348, 2m1349, 2m1349, 2m1350, 2m1351, 2m1352, 2m1353, 2m1354, 2m1355, 2m1356, 2m1357, 2m1358, 2m1358, 2m1359, 2m1359, 2m1360, 2m1361, 2m1362, 2m1363, 2m1364, 2m1365, 2m1366, 2m1367, 2m1367, 2m1368, 2m1368, 2m1369, 2m1369, 2m1370, 2m1371, 2m1372, 2m1373, 2m1374, 2m1375, 2m1376, 2m13

C. Secondary Data Collection – Historical Data

(Use separate sheets for high/mid/low lands)

SL No.	Question	Answer
1	The reasons for dependence of local communities on river.	For, fish, Agriculture, and other activities
2	The number of fishermen depended on fishing in the sampling area	no such group was noticed.
3	Is there any change in the services (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same.	Yes. may be due to vegetation erosion, encroachment, sand mining, and may be due to poor availability of rain
4	List (local names) of fish available in the river system	Guris, Remora, vang, oorva, chit, rong, sandal, mudi, oori, sande, bengis, rach,
5	The species (mainly fish) that have declined in availability (abundance)	B tilapia, Wallago attu, H. fasciatus, eel
6	The species (mainly fish) that are once common in the area and disappeared recently	not observed
7	Is there any new addition of flora and fauna in the region (eg. Exotic fish, fish eating birds, etc)	not noticed
8	Is there any major change in habitat structure? If yes, list them	Yes. River structure is converted to full green vegetation. Sand mining converted the river bed to ditches and soft marshy land.
9	Is there any animal that dependent on the river (eg. Otter) disappeared in recent times	not known
10	What are the common fishing practices available in the region?	hooking, gill net use
11	Is there any unscientific methods practised (eg. Dynamiting, poisoning, adakkam kolli vala, etc.)	not known
12	Any traditional knowledge on fish available in the area	No
13	Suggestions on conservation of fish (as perceived by the local communities)	Sand mining and too much of checkdams completely destroyed the fauna of the river, both should be checked.

Chittipuzha, Gayathripuzha & Kalpathypuzha



Secondary Data Collection – Historical Data
(Use separate sheets for high/med/low trends)

Sl. No.	Question	Answer
1	The reasons for dependence of local communities on river.	
2	The number of fishermen depended on fishing in the sampling area.	
3	Is there any change in the sources (water including ground water, sand, fish) offered by the river over the years? If yes, reasons for the same. (use separate sheet, if needed)	
4	List (local names) of fish available in the river system. (use separate sheet, if needed)	
5	The species (mainly fish) that have declined in availability (abundance)	
6	The species (mainly fish) that are once common in the area and disappeared recently.	
7	Is there any new addition of flora and fauna in the region (e.g. Exotic fish, fish eating birds, etc.)	
8	Is there any major change in habitat structure? If yes, list them.	
9	Is there any animal that dependent on the river (e.g. Once) disappeared in recent times	
10	What are the common fishing practices available in the region?	Other Locations
11	Is there any unscientific methods practised (e.g. Dynamiting, poisoning, sandbar Kochi etc., etc.)	e.e
12	Any fish diseases outbreak observed till date?	A.s
13	Any traditional knowledge on fish available in the area	
14	Suggestions on conservation of fish (as perceived by the local communities)	

Table I

List of Fish Species Collected from ... **Chitturpuzha, the Upper catchment area of Bharathapuzha...Kerala**

Sl.no.	Name of Species	No. of organisms collected			Remarks
		High	Mid	Low	
1	Tilapia	2	15	3	
2	P.filamentosus	27	55	20	
3	P.fasciatus	6	12	22	
4	Etroplus suratensis	11	5	-	
5	Catla.catla	2	-	2	
6	H.fossilis	2	-	1	
7	Wallago attu (fry)	4	1	1	
8	Mys.cavasius	8	9	1	
9	Channa hatchlings	>150	Numer.	-	
10	Ras.daniconius	8	18	-	
11	Garra mullya	6	3	6	
12	Bari.gatensis	12	9	14	
13	Param.thomassi	2	-	-	
14	Cla.dussumieri	2	4	-	
15	Lepido.thermalis	2	-	-	
16	Ambly.microlepis	71	57	32	
17	Anguilla	-	3	1	
18	Labeo rohita	-	-	1	

Sixteen species were caught from high land, thirteen species from mid land and only twelve species were caught from the low land of Chitturpuzha.

Table I

List of Fish Species Collected from ... **Gayathripuzha, the Upper catchment area of Bharathapuzha... Kerala**

Sl.no.	Name of Species	No. of organisms collected			Remarks
		High	Mid	Low	
1	<i>Bhawania australis</i>	15	-	-	
2	<i>Noemacheilus triangularis</i>	4	1	-	
3	<i>P. filamentosus</i>	41	44	57	
4	<i>P. fasciatus</i>	11	23	33	
5	<i>Etroplus suratensis</i>	4	6	2	
6	Channa hatchlings	Numer.	>150	-	
7	<i>H. fossilis</i>	4	-	1	
8	<i>Ambly microlepis</i>	35	44	45	
9	<i>Garra mULLya</i>	4	5	3	
10	<i>Lepido thermalis</i>	8	9	-	
11	<i>Channa striatus</i>	3	3	2	
12	<i>Barilius gatensis</i>	20	9	-	
13	<i>Wallago attu</i>	-	3	1	
14	Tilapia	-	4	8	
15	<i>Clarius dussumieri</i>	-	4	-	
16	<i>Mys. cavasius</i>	-	2	3	
17	<i>Ras daniconius</i>	-	14	10	
18	<i>Param. thomassi</i>	-	5	22	

Twelve species were collected from the High land, sixteen species were caught from the mid land where as twelve species were collected from the low land of Gayathripuzha.

Table I

List of Fish Species Collected from ... **Kalpathyppuzha, the upper catchment area of Bharathapuzha, Kerala**

Sl.no.	Name of Species	No. of organisms collected			Remarks
		High	Mid	Low	
1	<i>Catla catla</i>	1	2	2	
2	<i>Labeo rohita</i>	1	1	2	
3	<i>P. fasciatus</i>	13	20	12	abondant
4	<i>P. filamentosus</i>	20	24	27	abondant
5	<i>Mastacembelus armatus</i>	3	-		
6	<i>H. fossilis</i>	2	1	5	
7	<i>Etroplus suratensis</i>	6	-	2	
8	<i>Wallago attu</i>	1	-	1	
9	<i>Mystus cavasius</i>	7	2	2	
10	<i>Tilapia</i>	7	3	3	
11	<i>Barilius gatensis</i>	6	13	7	normal
12	<i>Hyporhamphus limbatus</i>	2	-		
13	<i>Ambly microlepis</i>	46	34	33	abondant
14	<i>Rasbora daniconius</i>	8	10	-	
15	<i>Garra mULLya</i>	-	6	2	
16	<i>Clarius dussumieri</i>	-	1	4	
17	<i>Channa striatus</i>	-	1	-	
18	<i>Param. thomassi</i>	-	2	-	
19	<i>Anguilla</i>	-	2	2	
20	<i>Mrighal</i>	-	-	1	

Fourteen species were caught from high land, fifteen species were collected from the mid land and fourteen were collected from the low land of Kalpathyppuzha.

Results:

Bhawania australis was collected only from the high land of Gayathripuzha. *Mastacembelus armatus* and *Hyphorhampus limbatus* were collected only from the high land of Kalpathypuzha. *Wallago attu*, *Anguilla*, *Etroplus*, *Noemacheilus triangularis*, *H. fossilis* etc were very rare in number. In the high land of Chitturpuzha were seen the migratory bird, the Gray wagtail and people told that Otter also present in that area.



Photo 1 *Wallago attu* and *Anguilla bicolor* caught by local man in Oottara of Gayathrippuzha

The purest water was present in the high land of Gayathripuzha and the dirtiest fouling water was present in the low land of Kalpathypuzha due to the ridiculous anthropogenic activities.

Alkalinity and hardness were high in the mid land waters of Gayathripuzha compared to the other regions of the rest of the areas studied.

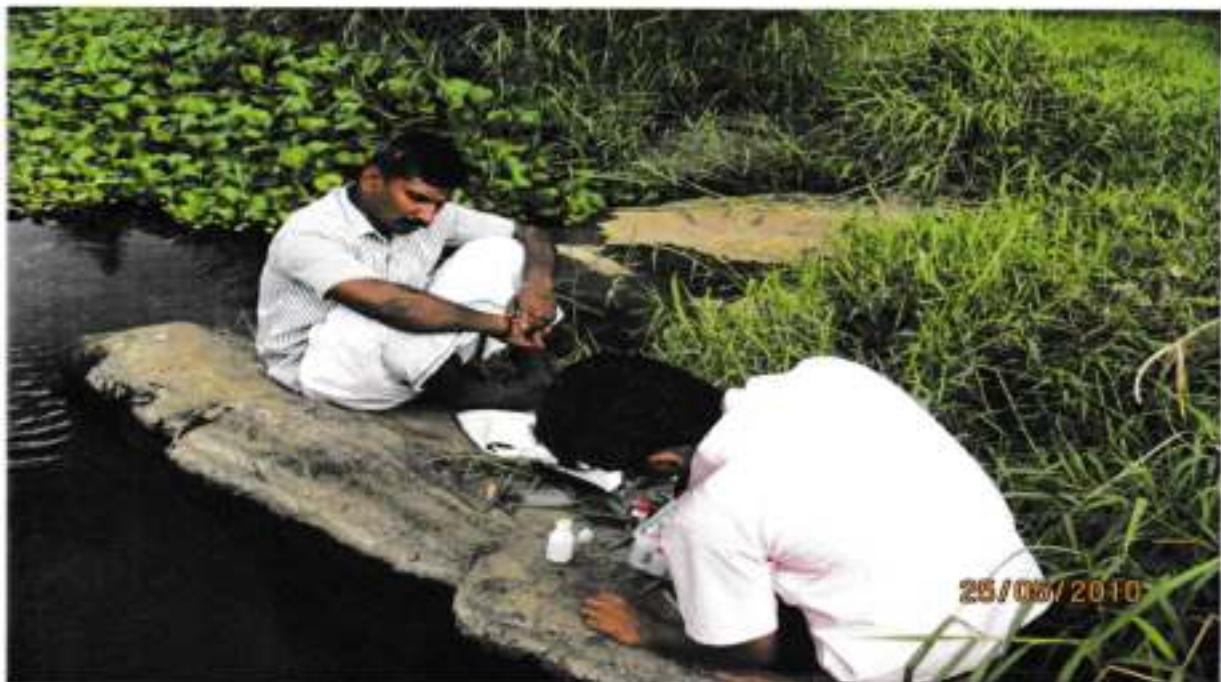


Photo 2 Water quality analysis done in Ottara site of Gayathripuzha



Photo 3 Seetharkundu site of Gayathripuzha

Along with this common vegetation of the water, a large number of land and marshy land vegetations were also seen covered in the river flowing areas of all the rivers.



Photo. 4 Water plants covered river surface of Kadukkakununilampathy site of Kalpathypuzha -common scene of all the rivers studied

Kunnamkattupathy site of Chitturpuzha, Parali site of Chitturpuzha and Kadukkankunnu nilampathy site of Kalpathypuzha have check dams and Puzhappalam site of Chitturpuzha, Oottara site of Gayathripuzha, Mayannur site of Gayathrippuzha and Parali site of Kalpathyppuzha have bridges in the rivers.

The common factors shown by all regions studied were the complete vegetation, erosion, encroachment and sand mining which have changed the structure and water quantity and quality of the rivers completely. The rivers should be protected by implementing strong laws and the person who violates the rules should be strongly punished. This is the only way to protect our nature and rivers to an extent.



Photo 5 Pathetic condition of Gayathrippuzha- Oottara site



Photo 6. Parli site of Kalpathypuzha Low land



Photo 7. At Kunnamkattupathy site of Chitturpuzhapuzha Upper land



Photo 8 Puzhappalam site of Chitturpuzha Mid land

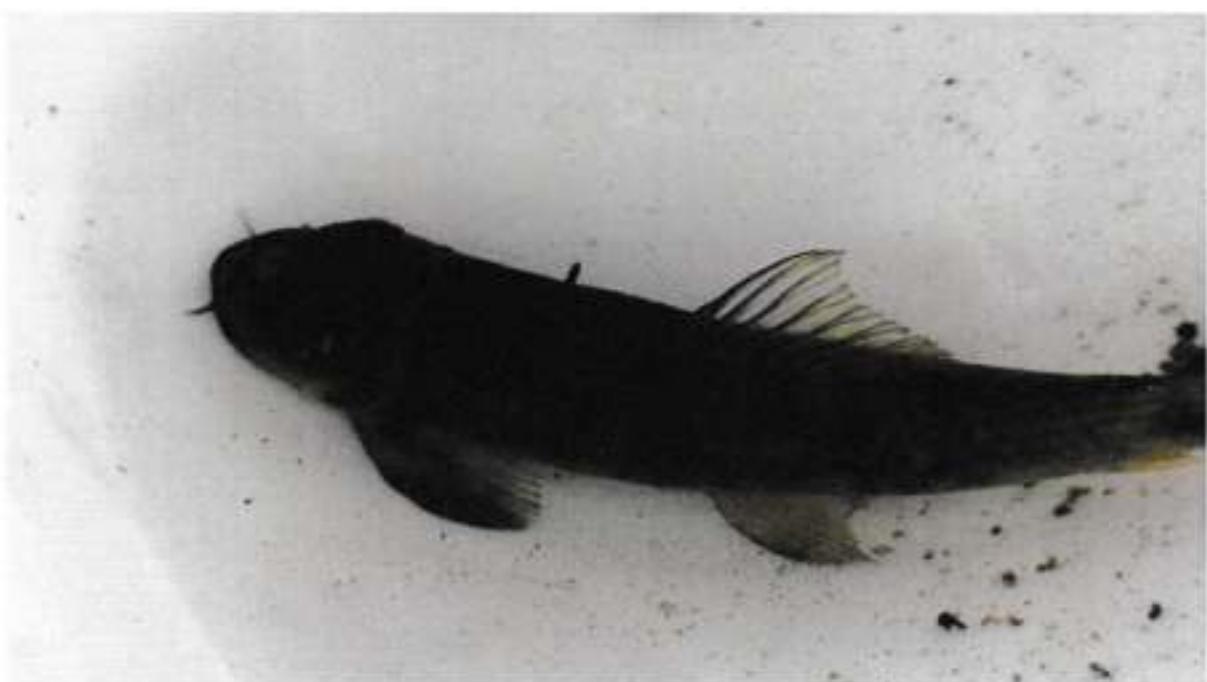


Photo 9 Garra mullya common in all rivers studied



Photo 11 Puntius fasciatus - common in all rivers studied

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