



Name : _____

Regn. No with Year : _____ of _____

College Roll No. : _____

**B.A./B.Sc./B.Com/
Honours/General/
Major in** : _____

Subject Combination : -----

Date of Field Work : -----

INSTRUCTIONS (do not print)

- Read the instructions carefully before submission of Field report:

- This draft report on Environmental Field Studies attempts to offer guidelines for student participants for preparing a final report, individually. This draft report is compiled by faculties based on field data (collected during field visits from ____ to 24.04.19 - 16.05.2019, **2019**, published reports, unpublished field reports and additional sources.

- Students are **encouraged to improve** this draft report with the input of additional data, illustration(s), detailed observation...etc in their final Field Report (attach additional pages, if necessary to accommodate additional input) . A tentative format is given in the back pages that may be followed for preparing the project report

INSTRUCTIONS (do not print)

- Students are instructed to enter their **Name, University Registration No. & Year, Roll No., date of field work** and their **subject Combination** in the **front page** of the final report in the specified space.
- Paste a photocopy of **field attendance certificate** (in the specified space of Field Report) issued in field. **Do not paste the original** certificate. Keep it till the publication of University Result/ Marksheet. **No submission is valid** if the photocopy of attendance certificate is not attached in the Field Report.
- The **Draft Field Report** has the following **Three (3) parts**:
 - PART-1: INTRODUCTION
 - PART-2: ECOLOGICAL STUDY
 - PART-3: SOCIAL STUDY
- The **Final Field report** would **comprise two (2) parts in which PART-1 (see later) is essential**. Students may opt to **submit any of the following combinations** as per their field study and/or subject

INSTRUCTIONS (do not print)

•Students are advised to **download the Draft Field Report** from Notice Board of Jogamaya Devi College website between _____, 2019 (13.00 Hrs.)

available at: www.jogamayadevicollege.in

<http://www.jogamayadevicollege.org/>

• **Date of submission of final field report:**

17.06.2019-20.06.2019

•17.06.2019, 2019: B.A.

•18.06.2019, 2019: B.Com.

•19.06.2019, 2019: B.Sc.

•**Venue for submission: Room No. 106,**
New Building, Jogamaya Devi College

•**Time:** 8am to 11.00 am (each day).

Format for Submission of Field Report:

•Handwritten/Typed/Printed on **A4** pages.

• Submit the pages of field report as stapled in a channel file/spiral bound.

DRAFT REPORT ON
RECONNAISSANCE
ENVIRONMENTAL FIELD STUDIES
IN EAST KOLKATA WETLANDS

JOGAMAYA DEVI COLLEGE, YEAR_____

***Submitted towards the partial fulfillment of
Calcutta
University Undergraduate Course Curriculum***

Name : _____

Regn. No with Year : _____ of _____

College Roll No. : _____

**B.A./B.Sc./B.Com/
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Subject Combination : -----

Date of Field Work : -----

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COUNTERSIGNED
ATTENDANCE
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Result / Marksheet

PART- 1

INTRODUCTION

INTRODUCTION

EAST KOLKATA WETLANDS (EKW) situated in the vicinity of Kolkata metropolis provides ample opportunity for environmental studies. This wetland forms a part of Sundarban Delta and constitute a significant ecosystem that supports a diverse fauna at the interface of dry terrestrial and permanent aquatic habitats.

East Kolkata Wetland forms a part of the extensive inter distributory wetland regimes formed by the Gangetic delta. As an apex of delta this area covers 12,500 ha comprising 5,852 ha of water bodies with 3,899 ha used for fish farming, 4,960 ha of agricultural land, 603 ha for garbage farming 1,235 ha and 91.5 ha for rural and urban settlement respectively. EKW serves as a "kidney" to Kolkata, receiving 250 million gallons of humanwastewater daily.

Along with the treatment of sewage water, it supports the livelihood of sixty thousands of people by utilizing the nutrients contained in the wastewater in fish farming and irrigating agriculture. EKW was designated as a "wetland of international importance" under the Ramsar Convention on August 19, 2002.

EKW occupies a special position for it nurtures the world's largest wastewater fed aqua culture system. In addition to fisheries, this wetland offers a cheap, efficient and eco-friendly operating system of solid waste disposal and sewer treatment for Kolkata metropolis. It caters to the snowballing demand of Kolkata metropolis, for fish protein, vegetables and other commodities. Even a self sustaining socio-economic structure may be seen to operate in this ecospace. Last but not the least - is the fact that EKW serves as the lungs and kidneys of ailing, urbane Kolkata. It is thus, for our own interest that we take a good care of our own, ever blissful, EKW so that a dynamic equilibrium is restored and maintained in the environment gradient. Accordingly, we need to know the interactive processes operative in these areas and we need to identify major and minor conflicts intrinsic in the system to suggest probable remedial proposals. Our reconnaissance field study in parts of EKW may mark a good initiative towards that direction.

Fortunately, EKW has been declared a RAMSAR site since 2002. To stop further deterioration of the system as also to restore its native state, the East Kolkata Wetlands Management Authority, Department of Environment, Govt. of West Bengal have prepared a comprehensive and Integrated Management Plan in keeping with basic guidelines of the Ramsar Convention (1971), and started implementing it.

STUDY AREA

The study area forms a part of **East Kolkata Wetlands (EKW)** lying between 22.480° 'N to 22.525°'N and 88.450° 'E to 88.505° 'E, (Fig.1).

Wetlands are defined as areas of earth, fen, peat land and water body, where one would find natural/ artificial, permanent/ temporary, stagnant/ flowing, freshwater/ brackish/ saline/ marine water. Water table is usually at or near the surface or the land is covered by shallow water.

The multifunctional EKW ecosystem consists of an area of 12,500 hectares with about 254 sewage fed fisheries, small agricultural plots and solid waste farms. Besides, there are some built up areas also.

- EKW supports a diverse fauna (both native and cultured) and bring about myriad benefits to mankind, providing opportunities for cultivation, sewage fed fisheries, urban waste disposal and recreation.

Location Map of the Study Area Showing Waypoints



PART-2

ECOLOGICAL STUDY

OBJECTIVE:

Reconnaissance environmental field study was aimed at achieving the following objectives:-

1. To learn the basic approaches and field techniques of environment studies, as far as practicable.
2. To record field data in a systematic, meaningful way.
3. To develop a basic understanding of the studied wetland system and its' significance
4. To have a preliminary area about the socio-economic scenario of the study area.

Field Study & Observations

Despite the time constraints, some important facets of Environment were focused following unique approaches of different subject disciplines. This report incorporates insight gained through:-

1. Ecological observations
2. Observations on land use pattern
3. Socio-economic observations.
4. Health & Environment Awareness:

1. ECOLOGICAL OBSERVATIONS

✓ Present study attempts to understand the basic tenets of a sustainable ecosystem operative in the sewage fed fisheries around Nalban and in the adjoining areas of EKW.

✓ Field study involves collection of field data on soil temperature, water salinity, transparency and pH conditions in classified water bodies (feeder canal, sediment settling tanks, fish rearing ponds, partially submerged lands etc.).

✓ Few field instances of animal activities were recorded for benthic fauna present in the study area.

✓ A number of culturable fishes and other animal fauna and plant taxa were identified along the field traverses.

✓ Additional information on biochemical parameters of water bodies *vis-a-vis* different types of cultivable fishes in this wetland were sufficed from published reports, literature and other authentic resources.

METHODOLOGY- Ecological Studies

1. pH of the water is measured by digital pH meter and litmus paper.
2. Salinity of water is measured by digital salinometer.
3. Soil temperature is measured by soil thermometer.
4. Transparency of water is measured by Sachi Disc.
5. Aquatic flora and fauna are studied by plankton net.
6. Location for individual study points is recorded by GPS.
7. Traverse details , waypoints and maps are documented from GoogleEarth.
8. Photographs, diagrams, write up etc. are processed using MS-Office-2007 and CORELDRAW-11 and public domain software (Surfer-6).

Field Data collected from field traverses during Ecological Studies are given in Tables below:

Table-2. Water Quality in different water bodies.

Date	Site	Location	Soil Temp (°C)	Water Temp (°C)	Water pH	Salinity	Water Pressure (mm Hg)	Water Conductivity (µS/cm)	Total Dissolve Solute (ppt)	Resistivity (MΩ-cm)	Oxygen Reduction Potential
26.04.19	Canal	N22°30.674', E 088°28.638'	30	28.22	6.83	0.38	757	781	0.392	0.0013	-27.3
26.04.20	Canal	N22°30.584', E 088°28.580'	31	29.66	6.98	0.58	755.7	1179	0.589	0.0008	-0.27
26.04.21	Pond	N22°30.710', E 088°28.655'	30.5	27.21	6.76	0.4	756.4	821	0.405	0.0012	-117.3
24.04.19	Pond		32	30.59	7.55	0.39	758.3	0.0018	0.402	0.0011	93
24.04.20	Pond		32.4	29	8.29	0.31	758	0.0015	0.325	0.0015	163
24.04.21	Canal		32.5	29.21	7.07	0.5	757	0.001	0.513	757.8	162.5
25.04.19	Pond	N22°30.673', E 088°28.611'	33.2	31.98	7.17	0.36	757.1	759	0.592	0.0013	123.2
25.04.20	Pond	N22°30.69', E 088°28.545'	32.5	30.5	7.19	0.58	757.8	1185	0.593	0.0008	152.5

Data collection in Field



TABLE-3. Animal Fauna recognized in Sewage-Fed Fisheries of EKW (including cultivable fishes)

Sl.	Species	Short description
1	MRIGAL	A linear body, small head with blunt snout, mouth with thin non-fringed lips. Two barbels present on the upper jaw, caudal fin forked, head scaleless. They are bottom feeder.
2	SILVER CARP	This exotic fish was introduced in India in 1959 from Honkong. This fish has laterally compressed body with thin lips in the mouth. Body bears very thin small shiny scales, caudal fin forked, head scaleless. They are surface feeder.
3	PUNTI	Small laterally compressed body, abdomen rounded, small head with thin lips, barbels present. Caudal fin forked, head scaleless. They are bottom feeder.
4	MAGUR	Elongated scaleless body, head dorsoventrally compressed, head bears 8 barbels, dorsal fin is continuous, caudal fin rounded. They are bottom feeder and prefer muddy water.
5	LATA	Head snake like, dorsal fin long, without spine, caudal fin rounded, body elongated and subcylindrical, head with scales. They prefer muddy stagnant ponds or ditches.
6	TILAPIA (Niloticus)	Body laterally compressed, body is thick and broad, large mouth opening, fins are well developed, coloured patches on the body. They are found in ponds with rich organic matter.

TABLE-4. LIST OF PLANTS OBSERVED IN THE NALBAN – I AREA

SCIENTIFIC NAMES	COMMON NAMES	Family	DOMAIN/REMARKS
<i>Eichhornia crassipes</i>	Water hyacinth	Pontederiaceae	
<i>Hemigraphis hirta</i>		Acanthaceae	
<i>Colocasia esculenta</i>	Kochu	Araceae	
<i>Solanum perguii</i>		Solanaceae	
<i>Parthenium hysterophorus</i>	Parthenium	Compositae	
<i>Amaranthus spinosus</i>	Kantanotey	Amaranthaceae	
<i>Blumea lacera</i>	Baro kukshima	Compositae	
<i>Croton bonplandianum</i>	Bantulsi	Euphorbiaceae	
<i>Clerodendrum infortunatum</i>	Ghetu	Verbenaceae	
<i>Phoenix sylvestris</i>	Khejur	Palmae	
<i>Acacia Arabica</i>	Babla	Leguminosae	
<i>Cassia sophera</i>	Kalkashunda	Leguminosae	
<i>Bambusa sp.</i>	Bansa	Poaceae	
<i>Mikania scandens</i>	Taralata	Asteraceae	
<i>Abutilon indica</i>	Potari	Malvaceae	
<i>Lemna minor</i>	Khudi pana	Lemnaceae	Smallest Angiosperm
<i>Alternanthera sessilis</i>	Chanchi	Amaranthaceae	
<i>Eclipta alba</i>	Kesut	Asteraceae	
<i>Calotropis procera</i>	Shet-akanda	Asclepiadaceae	
<i>Acanthus ilicifolius</i>	Hargoza	Acanthaceae	Brackish
<i>Leucaena leucocephala</i>	Subabul	Mimosaceae	
<i>Jussiaea repens</i>	Keshar dam	Onagraceae	
<i>Lippia nodiflora</i>	Bhui okra	Verbenaceae	
<i>Typha angustata</i>	Hogla	Typhaceae	
<i>Borassus flabellifer</i>	Tal	Palmae	
<i>Musa sapientum</i>	Kala	Musaceae	
<i>Crotophora rotleri</i>		Euphorbiaceae	
<i>Adhatoda vasica</i>	Basak	Acanthaceae	
<i>Urena sinuata</i>	Kunjia	Malvaceae	
<i>Caesalpinia pulcherrima</i>	Krishnachura	Leguminosae	
<i>Justicia betonica</i>	Sudupuruk	Acanthaceae	
<i>Thevetia neriifolia</i>	Kolkey phul	Apocynaceae	
<i>Datura stamonium</i>	Dhutro	Solanaceae	
<i>Sida rhombifolia</i>	Lalberella	Malvaceae	
<i>Cynodon dactylon</i>	Durba ghash	Poaceae	
<i>Zizyphus jujube</i>	Kol	Rhamnaceae	
<i>Solanum sisymbriifolium</i>		Solanaceae	
<i>Azadirachta indica</i>	Neem	Meliaceae	
<i>Anisomeles ovate</i>	Gobura	Labiatae	
<i>Ageratum conyzoides</i>	Dochunty	Compositae	
<i>Tridax procumbens</i>	Tridaksha	Compositae	
<i>Achyranthes aspera</i>	Apang	Amarantaceae	
<i>Ficus benghalensis</i>	Bot	Moraceae	
<i>Ficus religiosa</i>	Aswatha	Moraceae	
<i>Pedilanthus sessilis</i>	Rangchita	Euphorbiaceae	
<i>Ipoemia reptans</i>	Kalmi lata	Convolvulaceae	
<i>Vernonia cineria</i>	Ironwood	Compositae	
<i>Coccinia cordifolia</i>	Telakucho	Cucurbitaceae	
<i>Evolvulus nummularius</i>	Bhui ankra	Convolvulaceae	
<i>Ficus carica</i>	Dumur	Moraceae	

PART-3

SOCIAL ECONOMIC STUDY

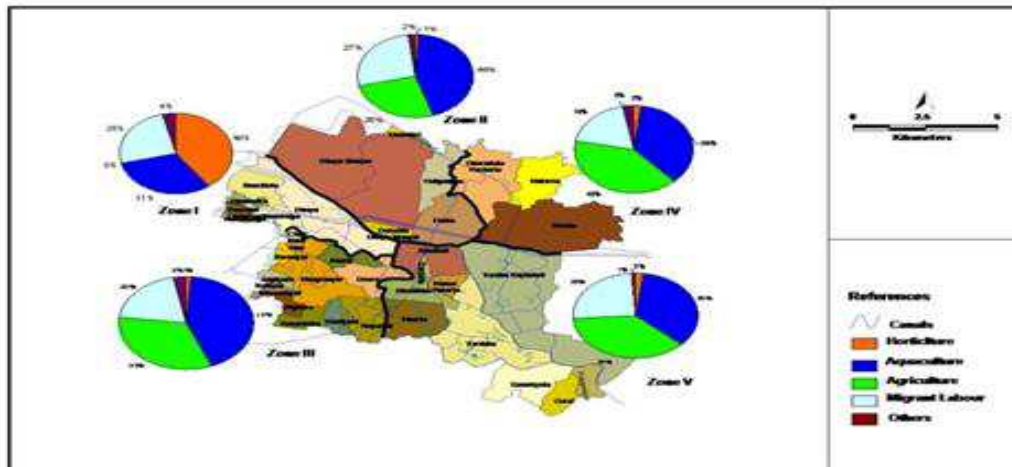
SOCIAL ECONOMIC SURVEY OF EAST KOLKATA WETLANDS

East Kolkata Wetland forms a part of the extensive inter-distributary wetland regimes formed by the Gangetic delta. As an apex of delta this area covers 12,500 ha comprising 5,852 ha of water bodies with 3,899 ha used for fish farming, 4,960 ha of agricultural land, 603 ha for garbage farming 1,235 ha and 91.5 ha for rural and urban settlement respectively. EKW serves as a “kidney” to Kolkata, receiving 250 million gallons of human wastewater daily. Along with the treatment of sewage water, it supports the livelihood of sixty thousands of people by utilizing the nutrients contained in the wastewater in fish farming and irrigating agriculture. EKW was designated as a "wetland of international importance" under the Ramsar Convention on August 19, 2002.

East Kolkata Wetlands Management Authority (EKWMA) for management and conservation of this multifunctional wetland eco system was formed under the East Kolkata Wetlands (Conservation and Management) Act, 2006. Under this management programme the whole area has been divided into five development zones with a particular pattern of distribution of occupation (Table 1; Map 2.8)

Zones	Agriculture	Aquaculture	Horticulture	Migrant labour and others
Zone I	4%	31%	40%	25%
Zone II	26%;	44%	1%	27%
Zone III	33%	43%	1%	23%
Zone IV	40%	36%	19%	2%
Zone V	30%	35%	6%	29%

TABLE 1: PATTERN OF DISTRIBUTION OF OCCUPATION ACROSS DIFFERENT DEVELOPMENT ZONES IN EKW AREA



Map1: Community occupational profile of East Kolkata Wetlands

In development zone II, in Nalbon I area, a pilot survey on socioeconomic aspect was conducted by the students of Semester II with Economics Advance, under the guidance of the faculty of Economics department of Jogamaya Devi College on April 25 of 2019. The study area was in Haripota a tribal village, with population migrated long time back from the neighbouring districts and states. This village is surrounding Nalban 1 Fishery Cooperative Society Limited with 62 members, commanding 180 bigha of land which comprises 140 bigha for fish cultivation and the remaining 40 bigha (split into 4 parcels of land) now-a-days being used for picnic spot and shooting for the film. The cooperative was formed in 2002. As the members reported at present Fishery Cooperative earns revenue only from fish cultivation and selling, renting the land for picnic spot and for the spot for shooting movies / TV serials. The students collected the socio economic data from one adult respondent from each of the 14 sampled household (which is 21% of total households in that particular village) by the structured and non-structured questionnaires (Questionnaire in Appendix A). In this empirical pilot study both the village and the households were chosen in a purposive method. 71% of those households are members of the aforementioned cooperative. Those households comprise 65 family members of which 22 are adult male and 26 are adult female while 17 being the number of children with age below 14 years. Among the 48 adult individuals 18 (38%) are reported to be completely illiterate (Figure 1).

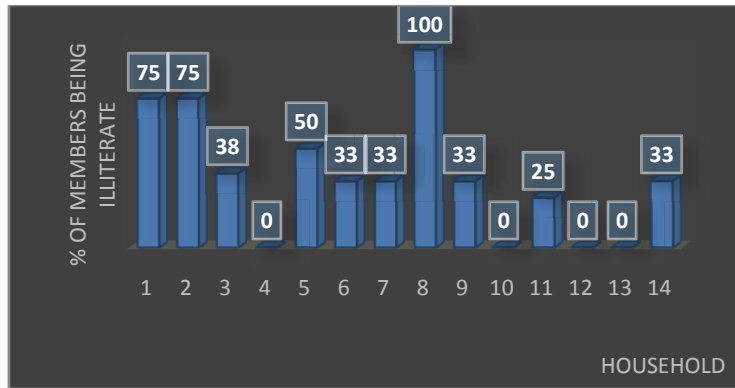


Figure1: PERCENTAGE OF ADULT MEMBERS BEING ILLITERATE IN SAMPLED HOUSEHOLDS

In household survey our primary objective was to test the linkage between wetland resource and livelihood pattern in EKWA area. It purports to assess how far wetland ecosystem under EKWMA area plays a deterministic role in economic livelihood of the households surrounding this region and what is its implication from policy perspective.

Since the population in the village are exclusively migrated, in most of the cases, they don't have any well-defined property rights to the land and the resource. The sustenance of their livelihood there occurs through the engagement in fish farming, agriculture and horticulture mostly in the government vested land, trading with the products there in and also in seeking employment as unskilled labour in metropolis area. So far their homestead land is concerned they enjoy some de facto ownership right in many cases without any written authentic document like '*patta*'. '*Patta*' was given to them as a part of Operation *Bargain* the Left Front Government regime. As there is every possibility of eviction and that very often takes place as political regime changes, many households do not like to disclose the truth about their current status in land ownership to the people like us, outside their community. Without any defined property right and fixed source of income each of the household in this village ekes out its livelihood from multiple sources of income. They are struggling in the abject poverty and that is why we chose this population to examine how far their survival strategy is determined by the wetland resources in EKW area. Considering the type of wet land and non-wet land activities in which occupation wise each household member is engaged, we have categorized into six types of employment there:

- (i) working only in fishery-cooperative (like security guard, cleaning the ponds etc on daily basis),
- (ii) working in fishery cooperative plus in wetland farming in owned/ leased land,
- (iii) engaged only in wetland farming(owned/ leased land), other than that under fishery cooperative
- (iv) engaged in wetland farming(owned/ leased land) plus in other non-wetland services like masonry works, maintenance of private houses outside EKW.
- (v) engaged only in non-wetland services; and finally,
- (vi) working as landless agricultural labour in wetland farming other than those under fishery cooperative.

HH SL. NO	DEMOGRAPHIC COMPOSITION OF HH MEMBERS (NO)			OCCUPATION WISE HH MEMBER (NO.) ENGAGED IN						
	ADULT MALE	ADULT FEMALE	CHILD	FISHERY COOPERATIVE	FISHERY COOP + FARMING	WETLAND FARMING (OWNED/ LEASED)	FARMING + NONWETLAND ACTIVITY	FISHERY COOP+NONWETLAND AND ACTIVITY	NON WETLAND ACTIVITY	AGRI-CULTURE IN WETLAND FARMING
1	2	2	0		2					
2	2	2	2	1		2				
3	3	5	1	1			3			
4	1	2	0	1					1	
5	2	2	1	1		1				
6	1	2	2	1				1		
7	2	1	0			2				
8	1	1	2							1
9	1	2	2	1						
10	0	2	2	2						
11	3	1	1			3				
12	2	1	0		1					
13	1	1	1	1						
14	1	2	3	1					2	
TTL	22	26	17	10	3	8	3	1	3	1

TABLE2: OCCUPATIONWISE CATEGORIZATION OF HH MEMBER IN VARIOUS ACTIVITIES

In 14 sampled households 29 members (60%) are earning income from various sources of employment. Among them 35% of the household members' income are entirely dependent on Fishery Cooperative. 90% of the total earning members of the households are either in a mixed (55%) or unmixed way dependent on wetland activities to derive their livelihood (Figure 2). Thus, EKW is found to play a significant role in determining livelihood of the people in the area.

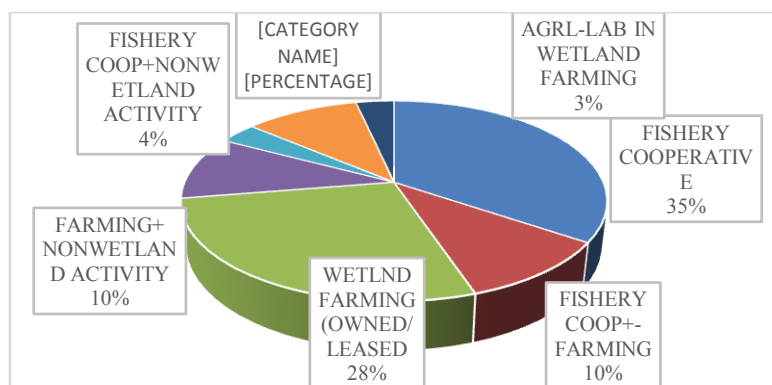


FIGURE 2: DISTRIBUTION OF HOUSEHOD MEMBER ACCORDING TO THE SOURCE OF INCOME

Comparing total per capita monthly income with per capita monthly income from wetland activities of the sampled households Figure 3 shows only for four out of 14 households, per

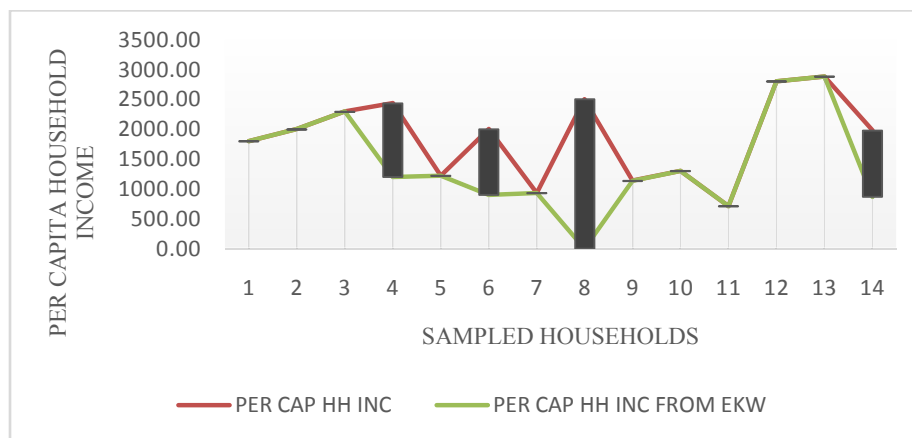


Figure 3

capita total income are significantly higher than per capita income from wetland activities performed in EKW. Considering those from wetland and non-wetland activities, per capita (per

PER CAPITA MONTHLY INCOME OF HOUSEHOLD FROM:	AVERAGE (MEAN) IN RS.	STANDARD DEVIATION	COEFF. OF VARIATION (SD/MEAN)
(a) WETLAND ACTIVITY	1431.78	219.8	0.15
(b) NON-WETLAND ACTIVITIES	1486.11	581.7	0.4
(c) WETLAND & NON-WETLAND ACTIVITIES TOGETHER	1856.39	672.33	0.37

TABLE 4: COMPARISON BETWEEN PER CAPITA MONTHLY INCOME OF HOUSEHOLD FROM WETLAND AND NON-WETLAND ACTIVITIES AND ALL ACTIVITIES TOGETHER

head) income on an average from these two sources, are almost the same (Rs. 1431.78 and Rs. 1486.11 respectively). But if we consider them in terms of variability, coefficient of variation is two times higher in non-wetland based per capita income (TABLE 4). This indicates greater inequality in distribution of income from non-wetland based activity which is attributing to the overall inequality in distribution of per capita income (CV=0.37). In our pilot study, 35% of the members of the sampled households are earning from fishery cooperative on daily basis of Rs. 150/- per day and six days weekly with Rs. 900/- (maximum) per week. This is almost fixed for each worker and there is no seasonality. Seasonality occurs in agricultural activities and thus seasonal fluctuation in income from wet land based farming is quite plausible. Thus mean per capita income from wetland activities as shown in Table 4 does not represent the true



PICTURES FROM THE FIELD: SOCIO-ECONOMIC SURVEY BY THE STUDENTS OF ECONOMICS DEPARTMENT

Different categories of wet land based economic activities	Peak income period	Lean income period
(I)Wet land fisheries	June, July, August, September	December, January, February
(II)Wet land agriculture (rice, vegetables, fruits): cultivation, share cropping, working as agricultural labour	October, November, December, January (for vegetables), June, July, August (rice)	Rest of the year
(III)Wet land trading (fish, fruits and vegetables)	June, July, August, September (for fish trading); October, November, December, January, June, July (for fruits and vegetables trading)	December, January, February(for fish trading):
(IV)Services to Wet land fisheries like cleaning, patrolling (night guard) to protect the wetland resources (fish agriculture horticulture) against theft and open grazing	There is no division between Peak period and Lean period	

TABLE 5: SEASONALITY IN DIFFERENT TYPES OF WETLAND ACTIVITIES

income for those who earn livelihood from wetland farming (cultivation of food grains (rice) , fish farming, horticulture or vegetables cultivation. Peak income period in a year also varies (TABLE 5) across different types of wet land activities. Among the 14 sampled households six households own (two of them jointly) cultivable land and four of the households own fishery pond (three of them jointly; number of shareholders not reported, nor the value of produce). Two varieties of rice are cultivated: fine and coarse. The rice productivity per bigha of land is 4 quintal (= 8 bushels). Market price for the coarse variety is Rs. 600/- per bushel and

TYPE OF PRODUCT IN WETLAND FARMING	MAXIMUM VALUE	MINIMUM VALUE
a) rice	Rs. 1000/- per 50 Kg	Rs. 600/- per 50 Kg
b) horticulture	Rs. 350/- per bigha of land (2 sampled household leased in the private land (5 bighas shared by 3 households) at the rate of Rs. 1000/- per bigha (annually)	Rs. 250/- per bigha of land
c) mangoes	Rs. 450/- from selling daily during mango season (in the land leased out by fishery cooperative)	
d) fish	40 Kgs (small & medium sized) per bigha of pond; value not reported	28 Kgs (small & medium sized) per bigha of pond

TABLE 6: RANGE OF MARKET VALUES OF DIFFERENT TYPES OF WETLAND PRODUCE (OTHER THAN FISH) AS REPORTED IN HOUSEHOLD SURVEY

for the fine variety Rs. 1000/- per bushel. Since the households are extremely poor most the agricultural produce is consumed by themselves, little amount remains as marketable surplus. In the pilot study students further collected the perception data from the households: how do they rank the East Kolkata Wetland in terms of (i) income generating opportunity. 86% of the sampled households revealed their dissatisfaction. 14% revealed partial satisfaction.

Under the circumstance, the dismal picture that came out from our empirical case studies, suggests for vigorous development and more efficient management of fisheries and wetland farming to generate more income and thereby better livelihood for the inhabitant households in this particular EKW area.

ANNEXURE: QUESTIONNIRE (IN PDF VERSION)

ACKNOWLEDGEMENTS:

