

# A Baseline Study Report On

Accelerating natural breeding of cuchia and creating employment opportunities of poor people through household based cuchia farming” in Birampur and Fulbari upazila of Dinajpur

For

Learning and Innovation Fund to Test New Ideas (LIFT) Program

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28 October, 2017

## Acknowledgements

Under the learning and innovation Fund to Test New Ideas(LIFT) Programme, Gram Bikash Kendra(GBK) would like to acknowledge the support from Palli Karma-Sahayak Foundation (PKSF) for carry out the project **“Accelerating natural breeding of cuchia and creating employment opportunities of poor people through household based cuchia farming”** in Birampur and Fulbari upazila of Dinajpur district. GBK also express sincere gratitude to the management of Palli Karma-Sahayak Foundation (PKSF) for giving opportunity for conducting this baseline survey.

Thanks should be given to the dwellers of ethnic community, local fishermen and cuchia harvesters, fish traders, members of GBK for their cordial support during the baseline study. Special thanks and appreciation goes Mr A.Q.M Golam Mawla (General Manager), Mr. Moniruzzaman Khan (Assistant Manager) and Mr. Nura Alam Sazzadul Islam(Assistant Program Co-coordinator) of Palli Karma-Sahayak Foundation (PKSF) for their valuable suggestions and guidance for conducting the baseline survey.

GBK would like to express our gratitude to the Four Face Communication for their enormous effort to conduct the survey. GBK especially acknowledge the contribution of Mr. Shipon das, the survey team leader for his outstanding contribution during the survey. Finally special thanks for all LIFT Couchia Project of GBK for their smooth cooperation and support during the survey.

Chief Executive  
Gram Bikash Kendra(GBK)

October,2017

## Abbreviations

B	BBS	Bangladesh Bureau of Statistics
C	CS	Case study
D	DoF	Department of Fisheries
F	FAO	Food and Agricultural Organization
	FGD	Focus Group Discussion
G	GDP	Gross Domestic product
	GNP	Gross National product
	GoB	Government of Bangladesh
H	HHs	Households
I	IGA	Income Generating Activities
	IUCN	International Union for Conservation of Nature
K	KII	Key informant interviews
L	LIFT	Learning & Innovation Fund to Test New Ideas
N	NGO	Non Government Organization
P	PKSF	Palli Karma-Sahayak Foundation
	POQS	Participant Observation and Questionnaire survey
G	GBK	Gram Bikash Kendra
S	SPSS	Statistical Package for the Social Science
	SS	Secondary Sources
Q	QD	Quantitative Data
	QM	Qualitative Methods

## Glossary

- Beel** A beel is a billabong or a lake-like wetland with static water (as opposed to moving water in rivers and canals - typically called khaals), in the Ganges - Brahmaputra flood plains of the Eastern Indian states of West Bengal, and Assam and in the country of Bangladesh.
- Cuchia** A sluggish fish resembling an eel, inhabiting swamps in Bengal, and having membranous vascular sacs enabling it to breathe air and most fins absent or vestigial.
- Dalit** Dalit is mostly used to describe communities that have been subjected to untouchability. Such people were excluded from the four-fold varna system of Hinduism and thought of themselves as forming a fifth varna, describing themselves as Panchama.
- Ethnic Group** An ethnic group, or an ethnicity, is a category of people who identify with each other based on similarities such as common ancestry, language, society, culture or nation.
- Flood Plain** An area of low-lying ground adjacent to a river, formed mainly of river sediments and subject to flooding.
- Haor** A haor is a bowl shaped depression which is flooded every year during monsoon.
- Sautals** The Santals are known as one of the oldest and largest indigenous communities in the northwestern belt of Bangladesh. Santals are largely seen in the northern districts of Dinajpur, Naogaon, Thakurgaon, Panchagarh, etc. They have been living in the pristine natural surroundings of the area for thousands of years. They might be described as children of nature who are nurtured and reared by its bounty.
- Tribal** The definition of tribal is relating to a group or community with similar ancestors, customs and traditions.
- Wetland** A wetland is an ecosystem that arises when inundation by water produces soils dominated by anaerobic processes, which, in turn, forces the biota, particularly rooted plants, to adapt to flooding.

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## Executive Summary

Gram Bikash Kendra (GBK) has implementing the HHs level cuchia farming initiative since June 2017 at Birampur and Fulbari upazila of Dinajpur district receiving both technical and financial support from Palli-Karma Sahayok Foundation (PKSF) under its innovation Fund. For this baseline survey, survey relevant tools are used as HH survey questionnaire, FGD, document review, KII and case Study etc. 200 questionnaires were conducted at field level. Required data were analyzed through various types of statistical tools and techniques especially used SPSS. The qualitative methods (QM) were followed for the purpose of validation and reliability of the field data collection and reinforcing quantitative data (QD).

Surveys showed among the respondent 96% are Christian. They are the ethnic people (called Sautal). Only 8 respondents (4%) are Hindu. Among the respondents there was no Muslim. It indicates that cuchia culture and farming is very famous and popular to the Ethnic group and Hindu community rather than Muslim community. It was found that out of 200 respondents, 59.5% HH heads were illiterate. Most of the respondents are ethnic people and literacy rate is very much lower in that community. About 12.50% HH head passed the primary level education, 6% passed SSC and only 1.5% passed HSC. Average household size found 4.14 which were almost similar to the national household survey. It was observed that among the respondent about 97.5% were day labour and only 1% people were involved with aquaculture. There are mainly cuchia catcher and seller. It was evident in the survey that 200 household consist of 930 people. Out of that number, 53% are male and 47% are female. Average number of earning member was found 1.89 which is less than 2.

Fish culture and fish related activities are not the major occupation in the surveyed area. Survey showed that 199 respondent don't have any pond of their own. Only 1 respondent has 1 pond. It means these ethnic people don't have any cultivable land and pond. But they can culture cuchia besides there are homestead as we know cuchia culture don't need much space. According to the survey, 99.5% respondents don't have any pond of their own. Among the respondent only 0.5% have 1 single owned pond. Cuchia culture can create home-based income generating activities for the female members of in his aforesaid working areas. During survey, Birampur upazilla found to be the most potential area for cuchia culture in Dinajpur district.

Survey also showed that average monthly income from primary source is 5,672 taka which is very low in context of our national statistics. Survey showed that 84% HHs don't have any secondary source of income. LIFT project should address this situation and introduce secondary income source for this ethnic community. 9% HHs have average monthly income from secondary source ranges 1-2,000 taka, 5.5% have 2,001-5,000 taka and 1.5% has



5,001-8,000 taka. So, create strong secondary income source for the HHs is one of the major task in this LIFT initiative. Average monthly income from secondary source among 200 respondents found 434 taka which is very nominal. Survey also showed that average monthly expenditure among 200 respondents found as 6,832 taka which is higher than average income. It means this ethnic group always have deficit to fulfill their livelihood. Survey showed that none of the HHs has over experience in aquaculture. This ethnic group doesn't have enough water body on which they culture fish or other things. Based on survey, it is clear that people of surveyed areas don't have any knowledge on aquaculture.

According to the survey, it was evident that among 200 respondents 98.5% HHs have savings & respondents were engaged with local NGO that's why they have savings. It was evident that among 200 respondents 163 (81.5%) have loan/credit and 37 HHs didn't have loan. Among 200 respondents 185 HHs (92.5%) don't have any bank account. But respondents were engaged with local NGO's and many of them have DPS into the NGO's also. A significant number of respondent (7.5%) have bank account in the formal bank. According to the survey it was evident that none of the respondent takes loan from local money lender. Survey also evident that local money lender doesn't give loan to the ethnic people because they don't have capacity to repay loan.

It was revealed that 31% moderately agree, 25% strongly agree, 18% agree that cuchia culture is easy to learn. About 26% respondent told that cuchia culture is not easy to learn. Almost 36% moderately agree, 15% strongly agree, 23% agree that cuchia culture risky. About 27% respondent told that cuchia culture is not risky. Survey result indicates that 42% HHs agreed cuchia culture complement other agriculture practice, 28% moderately agree and 18% strongly agree. Survey results showed that almost 13% HHs didn't agree that cuchia culture complement other agriculture practice. It was revealed that almost 36% moderately agree, 12% strongly agree, 41% agree that cuchia culture required lot of money. About 9% respondent told that cuchia culture didn't required lot of money. Actually there are different model for cuchia culture of which constructed house required more money than other model like hapa, ditch etc. It was revealed that almost 33% moderately agree, 7% agreed, 5% agree that cuchia culture produced enough fish for HHs use. About 56% respondent told that cuchia culture didn't produce enough fish for HHs use. Cuchia culture mainly focused for its commercial value. As we know Bangladesh may earn lot of foreign exchange through exporting cuchia. People may often use it as food but not regularly that's why it significant number of people disagree.

It has been revealed that irrespective of categories 100% of the respondents mentioned that cuchia is a fish. It has been envisaged that people in surveyed upazillas know about cuchia. So, the initiative didn't face any trouble to introduce cuchia in the working area

which is a positive sign for starting the initiative. All the respondents noticed that Cuchia is available in wetland (beel and paddy land) in the working area. Agricultural and aquaculture activities are very familiar here. Due to enough freshwater, cuchia culture can be very effective IGA to climate change adaptation in the surveyed areas. It was evident that most of the respondent takes cuchia as their meal. 100% respondent mentioned that Cuchia culture is a profitable business. Almost 100% respondent mentioned that they don't culture cuchia in ditch, hapa, pond or others way. They also mention that they don't have technical idea for cuchia farming. But they can harvest cuchia from open water bodies where cuchia naturally grown. Almost 100% respondent mentioned that they don't know the culture technique of cuchia in cistern, ditch or hapa. It was revealed that almost 44% respondents told that during bangla month Chaitra to Ashar, huge number of cuchia found in the working area. On the other hand, 14.5% and 19% respondents told that cuchia ia available in the month of Falgun-Sraban and Baishakh-Ashar respectively. It was revealed that almost 56% and 12% respondents told that less amount of cuchia found during bangla month Ashar-Magh and Ashar-Kartik respectively.

It was revealed that almost 35.5% respondents told that out of 12 months, only 5 months most difficult to get cuchia in the working area. A total of 105 respondents mention they don't know the information for cuchia selling but 81.8% respondents told they sell their cuchia in Porehat, Dhelapir, Taraganj bazaar of Nilphamary and Rangpur district. A total of 44% respondents told the average price per kg cuchia in the working area is BDT 250-350, whereas 40% respondents don't have any idea about the price of cuchia. It was revealed that 100% respondents don't grading their cuchia before sell. They told that cuchia below 50 gm have very less demand for export whereas cuchia above 500gm has upper market price and huge export demand also. Almost 69.5% respondents mentioned during the period of April-June they get the highest market price of cuchia in the working area. Almost 100% respondents mention that they don't get support for cuchia farming neither govt. nor NGO sector. But few of the respondents told that recently a local NGO named 'Gram Bikash Kendra (GBK)' has taken an initiative to support for the cuchia farmers as well as cuchia traders in Birampur and Fulbari upazilla. Almost 100% respondents mention that they are not involved in cuchia breeding and they don't know the technical aspects of cuchia breeding. They only engage themselves in harvesting cuchia from natural sources.

## Chapter- I



## Introduction



# Chapter-One

## Introduction

### 1.0 General

This report has been prepared for fulfillment of the contract between Gram Bikash Kendra (GBK) and Four Face Communication (FFC) for conducting baseline survey of “Accelerating natural breeding of cuchia and creating employment opportunities of poor People through household based cuchia farming”.

### 1.1 Background of the Baseline Survey

Gram Bikash Kendra (GBK) has been implementing this LIFT project titled “**Accelerating natural breeding of cuchia and creating employment opportunities of poor People through household based cuchia farming**” from July 2017.

The initiative will implement mainly with a view to contribute in improving livelihood condition of the small holder cuchia farmers who are living in poverty due to natural disaster and climate vulnerability through increasing income. The income of targeted cuchia culturists or members will be increased through increasing productivity, improving quality and market access. Under this initiative initially a total of 200 members will included. The project focus on building the capacity of members, local service providers, input suppliers and buyers to provide embedded or commercial services to the producers and enterprises that will create a competitive market. It will also engage the private and public sector to build the technical capacity of groups and link with high value market to gain a better price for their products.

The project is being implemented in Birampur and Fulbari upazila of Dinajpur district through partner NGO Gram Bikash Kendra (GBK). The project goal is to reduce poverty and increasing productivity and create self-employment through cuchia rearing by applying modern technology to the poor and marginal people.

### 1.2 Objectives of the Baseline Survey

The prime aim of this study is to assess the life and livelihood condition of cuchia farmers in Birampur and Fulbari upazila of Dinajpur district.

**The basic objectives of this baseline survey are -**

- 1.2.1 Assuming the benchmark of cuchia farmers in the study area, which includes demographic, income, occupations, existing GO & NGO services and market linkage activities as well as its status etc.

1.2.2 Provide tentative suggestions to achieve the sustainable livelihood and employment creation through cuchia farming in the working area.

1.2.2 Utilizing the baseline data with the evaluation data to compare the progress of project.

### 1.3 About *Monopterus cuchia*

#### 1.3.1 Common/Local Names:

<b>English Name</b>	Gangetic mud eel, Cuchia
<b>Known as Bangladesh</b>	Kuchia, cuchia, kucha, maitta cuchia, kunche
<b>Known as India</b>	Kuchia, cuchia, kunche (west Bengal), Anayabaim and kuchia (Bihar), Cuchia (Orissa), (Talwar and jhingran, 1991).

#### 1.3.2 Systematic Position of *M. cuchia*

Phylum- Chordata

Class- Actinopterygii (Ray-finned fishes)

Order- Synbranchiformes (Spiny eels)

Suborder- Synbranchoidae

Family- Synbranchidae (Swamp-eels)

Genus- *Monopterus*

Species- *Monopterus cuchia*

#### 1.3.3 Distributions:

In Asia: Pakistan, India (Northern & Northwestern areas), Nepal, Bangladesh and Myanmar ((Talwar and jhingran, 1991).



**Figure-1: *Monopterus cuchia***

## Chapter-II



## METHODS OF THE STUDY

### 2.0 General

This chapter deals with the methods and procedures followed in conducting the Baseline Survey of **“Accelerating natural breeding of cuchia and creating employment opportunities of poor People through household based cuchia farming”** project. After critical analysis of the Project guidelines, review of similar studies, discussion with PKSF and PO personnel of the project and field visits, an appropriate methodology was designed for this study.

### 3.1 Approach and Methodology

The baseline survey was designed to provide estimates of selected socio-economic characteristics of the population under the command area of the LIFT project at outcome level indicators/parameters. The approach thus included collecting data from the sample Producer Group members, market actors through discussion and consultation of records and literature. The methodology adopted particularly in undertaking the baseline study included consulting relevant records, reports, discussion/meeting with the key personnel of the project, reconnaissance field visit, project beneficiaries household survey for collecting both qualitative and quantitative data with particular emphasis on the scope of services.

This study has been completed most of the sources selection randomly and purposively from the target population. In order to get insight into the problem field as well as understanding of the study areas, an attempt was made to review the available secondary sources of information. The qualitative methods were followed for the purpose of validation and reliability of the field data collection and reinforcing quantitative data. For this baseline survey, survey relevant tools are used as HH survey questionnaire, FGD, Document review, KII and Case Study etc.

Before starting the field work, all field enumerators and supervisors were received comprehensive orientation training on the study as well as on the study methodologies and the designed questionnaires. Completion of the ‘Mock Test’, experiences of the teams was reviewed and the generalized instructions for the identified confusions/ambiguities were prepared by the Team Leader. Based on the pre-test, marginal adjustments in the questionnaires were made and consequently study had been conducted from mid of August to September 2017.

### **3.2 Sample Distribution**

The quantitative data collected through person-to-person interview on sample basis among already selected HHs of the project, who is involved in producer groups. Information on household members and household characteristics collected from the household head or producer group member of every selected household.

### **3.3 Qualitative Information Collection**

Qualitative information was collected mainly through Focus Group Discussion (FGD), Key informant interviews (KII). Some of the qualitative information was collected before the quantitative data collection to understand the situation and to formulate the questionnaire for the household survey. The FGDs and KII conducted by the survey team.

### **3.4 Data Analysis**

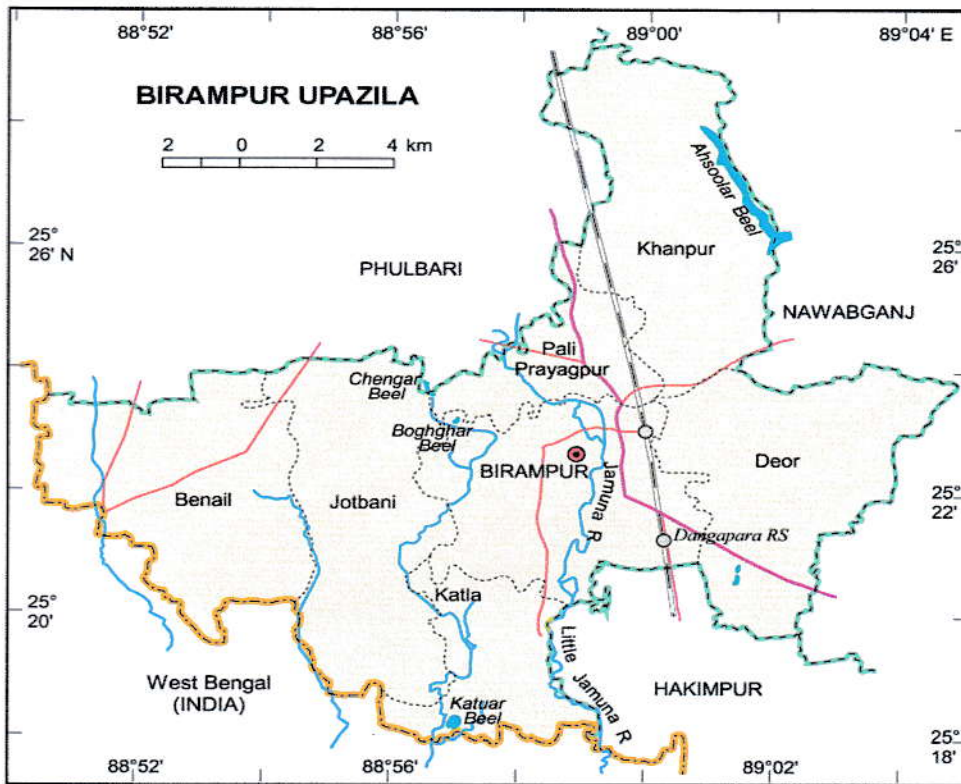
Once the Field Investigators started to feed questionnaires to the Team Leader, the data processing started with coding of questionnaires. The study team started to input the data as per output tables prepared by the Team. After intensive processing, synthesizing and analysis of data in the light of the scope of the study report writing was started. SPSS was utilized for processing the information collected.

### **3.5 Limitations of the Study**

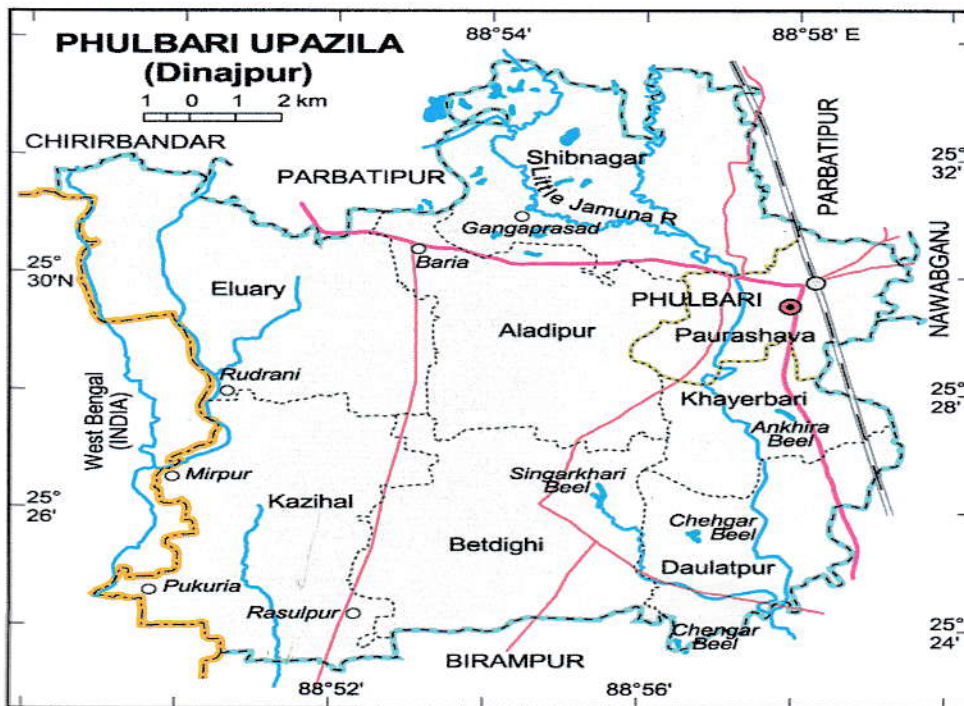
At the time of baseline data collection, some group member were not covered by Field Enumerators due to valid reasons including absent of household members (door lock), migration, and disallow to give interview etc. The baseline study should be taken place at the very initial stage of the project to assess the primary situation of the project participants but baseline of this project has been conducted after 3 months of its implementation. By this time, the project included group members on cuchia rearing issues thus awareness level of the respondent found comparatively high. It is presumed that the income and expenditure data is usually not very accurate, given the problems of poor recall by the respondents. There was tendency to under-report income for the fear of exclusion from a development programme; and difficulties of estimating income from unpaid work.



3.6 Map of Survey Area



3.6.1  
Map of  
Birampur  
Upazilla,  
Dinajpur



3.6.2  
Map of  
Phulbari  
Upazilla,  
Dinajpur

Figure-2: Map of Survey Area

## Chapter-III



## Literature Review

A total of 260 freshwater fish species of Bangladesh of which 54 are currently threatened (IUCN Bangladesh, 2003). Out of these 54 threatened fish species of inland waters, now 12 are critically endangered, 28 are endangered and 14 are in extremely vulnerable situation (IUCN Bangladesh, 2003). The biodiversity of these fish species are categorized under different levels of threat, such as vulnerable, endangered and critically endangered. According to Red list of IUCN *M. cuchia* is an endangered species. The species commonly occurs in Bangladesh, Pakistan, Myanmar, Nepal and India (Talwar and Jingran, 1991). Especially in Bangladesh, mud eel is generally available in open water resources such as haors, baors, beels, canals and floodplains (Hasan *et al.*, 2012). Abundance of this species in nature has been declined due to heavy fishing pressure, habitat destruction, aquatic pollution and indiscriminate uses of pesticides. So the biological study of the species is essential for artificial breeding and seed production.

Though the fish is only consumed by the tribal people in Bangladesh, the fresh blood of *cuchia* is directly consumed to cure weakness, anemia, asthma (Jamir and Lal, 2005; Kakati *et al.*, 2006), some people consumed gall bladder of *cuchia* to cure asthma, anemia, piles and diabetes (Saikia and Ahmed, 2012; Chakravarty and Kalita, 2012). However, *M. cuchia* is commercially important due to its high demand for export. There are about 800 fish and shrimp species in fresh and marine water environment in Bangladesh. However, only 4 species are truly exported to foreign countries. *Monopterus cuchia*, commonly called 'cuchia' is one of them and it is considered a nutritious and tasty fish. Its also a valued remedy in oriental medicine. *Cuchia* has a high demand in China, Hong Kong and Taiwan and some other Asian countries. Huge foreign currency can be earned by exporting this species. Currently, all the *Cuchia* that are exported from Bangladesh are collected from nature. It is an endangered fish; indiscriminate harvest from nature will hamper its diversity. Therefore, artificial propagation is important for this fish species. In the recent past years, *cuchia* export is increasing day by day. Most of the *cuchia* is harvested in the south-western parts of the country.

Fish and fisheries have been an integral part of the life of the people of Bangladesh from time immemorial and play a major role in employment, nutrition, foreign exchange earnings and other aspects of the economy (Alam and Thomson, 2001). Bangladesh is fortunate enough having a large number of rivers with their tributaries numbering about 700 (Ahmed

et al., 1995) and canals, haors, estuaries, ponds, tanks, beels, lakes. There are about 46, 99,387 ha inland water body in our country (39, 16,828 ha open water and 7, 82,559 ha close water body). Among open water, 8, 53,863 ha rivers and estuaries, 1, 14,161 ha beels, 68,800 ha kaptai lake and 27, 02,304 ha flood plain and fish production in inland fishery 28, 21,266 mt (DoF, 2014).

### 3.1 Review of Related Literature

Different types of documents from government agencies, researchers, non-governmental organizations from national and international level regarding *M. cuchia* were collected and reviewed in relation to this baseline survey. Some important works related are mentioned below-

**Baruah and Borah (2008)** reported that the spawning season in *M. Cuchia* is restricted from April to August with the peak during the July.

**Das et. al (2016)** studied on the controlled breeding and nursery technique of freshwater kuchia. Breeding season of *Monopterus cuchia* is summer and spawn during month of april to june which is found to be peak at May. It was found that fry reared with the stocking density of 75 fry/m<sup>2</sup> gives the best performance in terms of growth ( $5.889 \pm 0.248$ ) and survival (94%). For grow-out in cistern condition, 5 juvenile/ m<sup>2</sup> stocking density and fed with earthworm slice gives better growth and survival rate.

**Faruque et al. (2015)** studied the freshwater mud eel, *Monopterus cuchia*- a Review. The study found the freshwater mud eel *Monopterus cuchia* is a tasteful, nutritionally rich and medicinally valuable fish with high export demands which can play a unique role for socio-economic welfare of the area.

**Jana and Dasgupta (2008)** estimated the length-weight relationship and relative condition of mud eel, *M. cuchia* (Ham-Buch) from West Bengal. They calculated a high degree of positive correlation ( $r = 0.9842$ ) between length and weight of the fish.

**Munshi et al. (1989)** described the spawning season of *M. cuchia* in summer from May to June.

**Narejo et al. (2002)** estimated the relative condition factor (Kn) values of freshwater mud eel, *M. cuchia* ranged from 0.76 to 1.16 (SD $\pm$ 0.13 mean Kn 1.03) for males, 0.82 to 1.23 (SD $\pm$ 0.15 mean Kn 1.06) for females and 0.88 to 1.18 (SD $\pm$ 0.11 mean Kn 1.04) for combined

sexes relative condition factor was found to be high during the spawning period (April to June) and first naturally was found to attain at 25.2 cm in total length.

**Narejo et al. (2003)** found that group cuchia showed more active feeding than single cuchia. He also found under all conditions both single and group cuchia ingested more dead food items than live ones.

**Nasar (1989)** calculated the fecundity of *M. cuchia* ranging from 118 to 687 eggs.

**Rashid et al. (2002)** studied an investigation of the reproductive physiology of endangered mud eel *Monopterus cuchia*. Reproductive physiological characteristics such as external sexual characters, monthly gonado-somatic index (GSI), egg diameter, and fecundity of an endangered fish, mud eel *Monopterus cuchia* were studied to identify the peak breeding season.

**Singh et al. (1989)** described the spawning season of *M. cuchia* in summer from May to June.

**Zahan et al. (2016)** studied on the breeding and fry production techniques of *Monopterus cuchia*. They found that kuchia become mature at the weight of 200-400gm in nature and their fecundity is 250-650. They also revealed that the egg colour of kuchia is orange and sticky. They also found the breeding period of kuchia is last week of april to first week of june.

## Chapter-IV



## Survey Results & Discussions

## Chapter-Four

# Survey Results and Discussions

### 4.1 Demographic Condition of the Respondents

Demographic condition is often measured by education, income, gender and occupation to conceptualize the social status or class of an individual or group. People living in Birampur and Phulbari upazilla under Dinajpur district are mostly Christian and very few are Hindus. Financial condition of the surveyed people are not good enough, they have limited opportunities to get education, others employment and place of family status to contribute for self, family and society. Present section investigated the demographic factors to understand the background and present condition of the respondents in the survey area of aforesaid areas.

#### 4.1.1 Status of respondent by religion

Sl. #	Religion	Number of HH	%
1	Hindu	8	4.0
2	Christian/Ethnic people	192	96.0
	<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table-1: Status of respondent by religion**

It was evident from above table that both upazillas are Hindu prone area. Most of the people lives here are Hindu. Survey showed among the respondent 96% is Christian. They are the ethnic people (called Sautal). Only 8 respondents (4%) are Hindu. Among the respondents there was no Muslim. It indicates that cuchia culture and farming is very famous and popular to the Ethnic group and Hindu community rather than Muslim community.

#### 4.1.2 Educational Qualification

According to the survey it was found that Out of 200 respondents, 59.5% HH heads were illiterate. As mentioned above most of the respondents are ethnic people and literacy rate is very much lower in that community. About 12.50% HH head passed the primary level education and 6% HH heads passed SSC. Among the respondents 1.5% household heads were found who passed HSC.

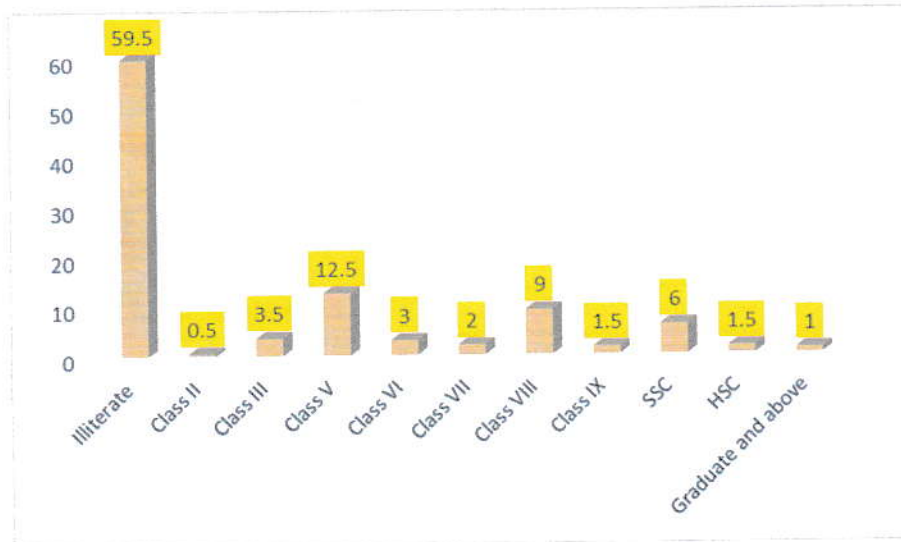


Figure-3: Educational Qualification of the HHs Head

#### 4.1.3 Household Size of the Respondents

Sl. #	Members in each HH	Number of HH	Total members	Average HH size
1	2	17	34	4.14
2	3	49	147	
3	4	59	236	
4	5	47	235	
5	6	22	132	
6	7	5	35	
7	8	1	8	
	<b>Total</b>	<b>200</b>	<b>827</b>	

Table-2: Household Size of the Respondents

On above table showed the household size of the respondents. Among the respondents 5 HHs have 7 members while 59 HHs have 4, 47 have 5 and 49 have 3 member I their household. Average household size found 4.14 which were almost similar to the national household survey.

#### 4.1.4 Primary occupation of the Household Head

According to the survey it was observed that among the respondent about 97.5% were day labour. Only 1% people were involved with aquaculture. There are mainly cuchia catcher and seller. Actually nobody culture cuchia for commercial purpose in the aforementioned upazilla. As mentioned above most of the respondents are day labour so they need alternate income source and cuchia culture can be a good alternate income source for them.



Sl. #	Occupation	Number of HH head	%
1	Parlor	1	0.5
2	Aquaculture	2	1.0
3	Van Driver	1	0.5
4	Day Labour	195	97.5
5	Job	1	0.5
<b>Total respondent HH</b>		<b>200</b>	

Table-3: Primary occupation of household head

#### 4.1.5 Sex Ratio of the Respondents:

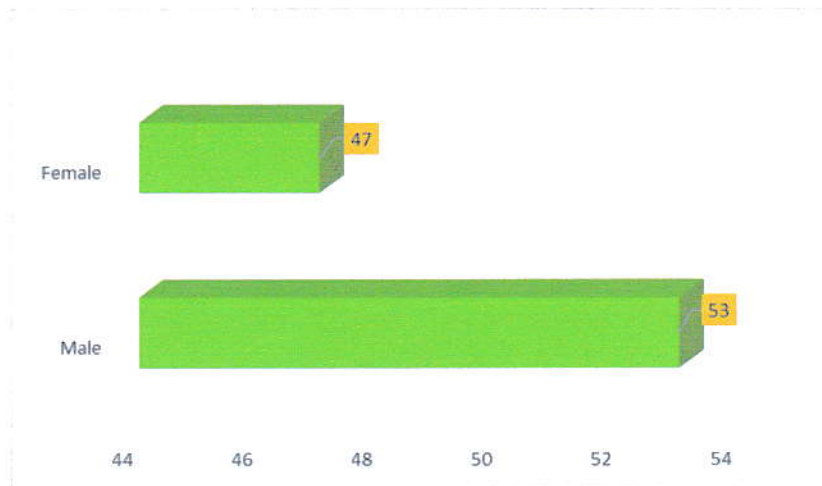


Figure-4: Sex Ratio of respondent household members

It was evident in the survey that 200 household consist of 930 people. Out of that number 53% are male and 47% female found in the survey.

#### 4.1.6 Age Distribution of Household members

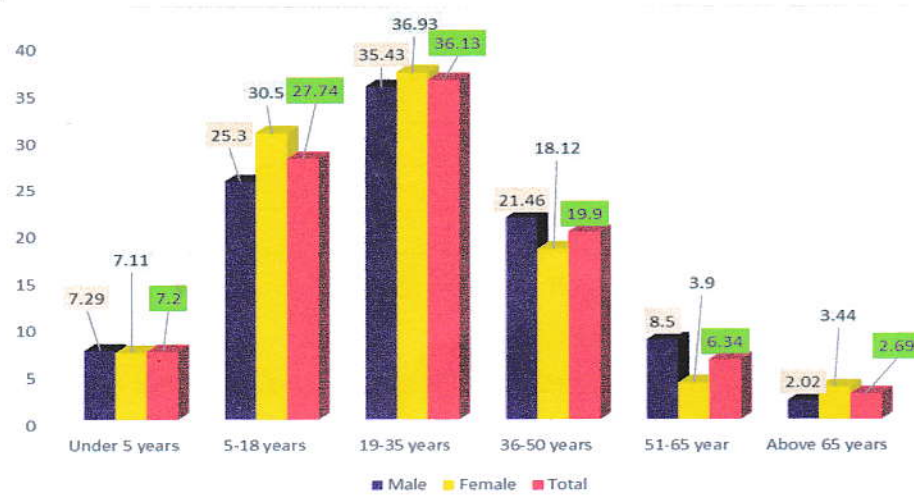


Figure -5: Age distribution of household member by sex (%)

Irrespective of sex, the respondents household members having youth age group of 19 to 35 years were recorded highest (36.13%) followed by 27.74% belongs to 5-18 years, 19.9% belongs to 35-50 years, and 6.34% belongs to 51-65 years. It also found 7.2% having less than 5 years and 2.69% belongs to older age group of more than 65 years. Thus, it has been envisaged that respondents HH constitutes higher number of youth aged, i.e. working age group followed by primary and secondary school aged children. This has given an opportunity to this project that this potential youth group can be used as catalyst for change the livelihoods of the households. Figure-3 delineated age distribution of household members by sex.

#### 4.2 Land, Pond and Income-Expenditure related information

##### 4.2.1 Status of dwelling house

Sl. #	Status	Number of HH	%
1	Own	196	98.0
2	Khas land	4	2.0
	<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table-4: Status of dwelling house**

People in the both upazila are mostly poor. They are always affected by natural calamities like cyclone, flood, cold wave, access rainfall, drought etc. According to the above table survey showed only 4 HHs (2%) don't have their own homestead.

##### 4.2.2 Number of Pond

Fish culture and fish related activities are not the major occupation in the surveyed area. Survey showed that 199 respondent don't have any pond of their own. Only 1 respondent has 1 pond. It means these ethnic people don't have any cultivable land and pond. But they can culture cuchia besides there are homestead as we know cuchia culture don't need much space.

Sl. #	Pond in each HH	Number of HH	Total pond	Average number of pond
1	0	199	0	0.01
2	1	1	1	
	<b>Total</b>	<b>200</b>	<b>1</b>	

**Table-5: Number of Pond**

##### 4.2.3 Status of Pond

According to the survey following table showed that 99.5% respondents don't have any pond of their own. Among the respondent only 0.5% have 1 single owned pond.

Sl. #	Type of pond	Number of HH	%
1	None	199	99.5
4	Single Owned	1	0.5
	<b>Total</b>	<b>200</b>	

**Table-6: Status of Pond**

#### 4.2.4 Earning member in respondent HHs

Number of earning member is a crucial factor for poor HHs. Both served upazilla are poverty prone area and most of the HHs has one earning member and have no cultivable land. Family has more earning member become earn more has less chance to face poverty. This initiative has been taken to create alternate income source for poor HHs or create more earning member in a family. Below table showed that 52 HHs have only 1 earning member and 123 have 02 and 21 have 03. Few respondents have more than 03 earning members. Average number of earning member was found 1.89 which is less than 02.

Sl. #	Earning member in each HH	Number of HH	Total earning member	Average number of earning member
1	1	52	52	1.89
2	2	123	246	
3	3	21	63	
4	4	4	16	
	Total	200	377	

**Table -7: Earning member in respondent HHs**

#### 4.2.5 Earning member in a family by sex

Among the respondents, a total of 9 HHs don't have male earning member. On the other hand 56 HHs don't have female earning member. It means adult female members of the HHs in the aforesaid two upazilla are not engaged in income generating activities (IGAs). From above finding, Cuchia culture can create home-based income generating activities for the female members of in his aforesaid working areas.

Sl. #	Male Earning member in each HH	Number of HH	Total male earning member	Female Earning member in each HH	Number of HH	Total female earning member
1	0	9	0	0	56	0
2	1	160	160	1	137	137
3	2	27	54	2	7	14
4	3	4	12			0
	Total	200	226		200	151

**Table-8: Earning member in a family by sex**

#### 4.2.6 Primary source of income for respondent HHs

According to the survey findings among the respondents 98% works as a day labour, they are mainly agriculture day labour. It means people lives in the both two upazillas are mostly depending on day to day income.

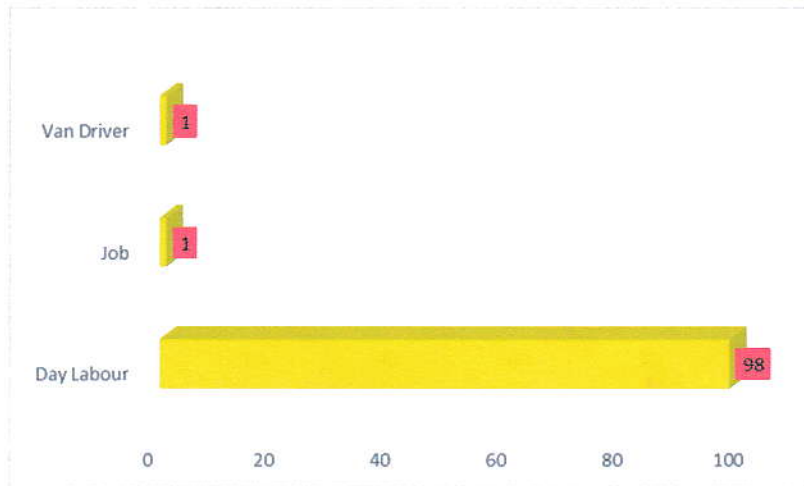


Figure -6: Primary Income Sources

#### 4.2.7: Monthly Income of respondent HH from primary sources

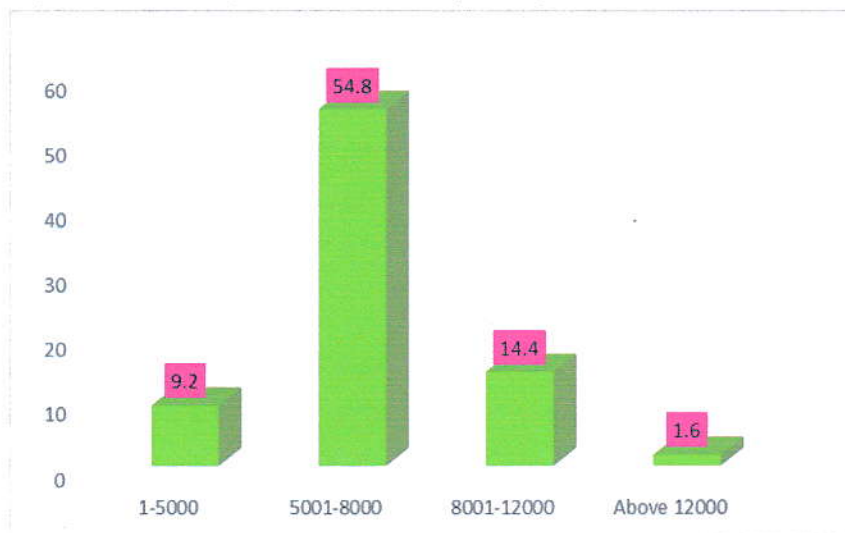
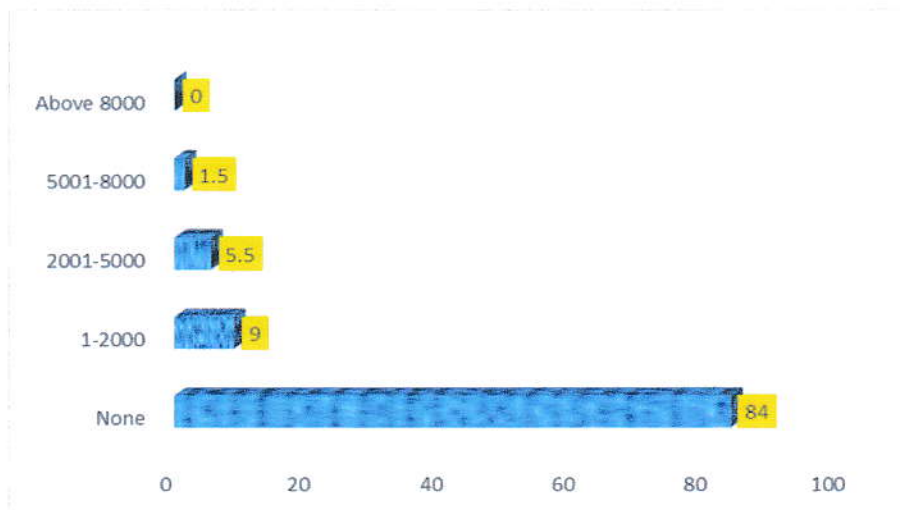


Figure-7: Monthly Income from primary sources

Above figure-7 showed that a total of 9.2% HHs average monthly income ranges from below 5,000 taka and 54.8% HHs average income ranges from 5,000-8,000 taka. On the other hand, 14.4% HHs average monthly income from primary source is 8,001-12,000 taka and 1.6% above 12,000 taka. So, it is very essential to take initiatives like cuchia culture which didn't required lot of money. Survey also showed that average monthly income from primary source is 5,672 taka which is very low in context of our national statistics.

#### 4.2.8 Monthly income of respondent HH from secondary sources

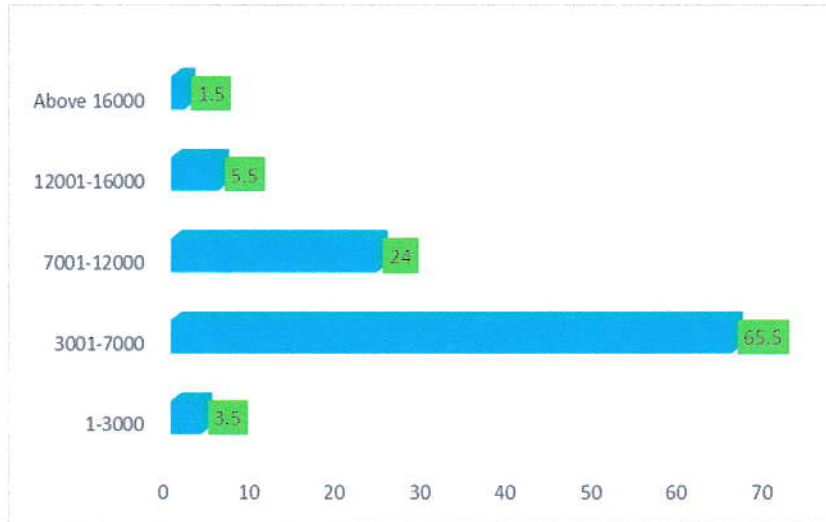


**Figure-8: Monthly Income from secondary sources**

Above figure showed that 84% HHs don't have any secondary source of income. This number is very alarming because people who belong in extreme poverty must need alternate source of income from better livelihood. LIFT project should address this situation and introduce secondary income source for this ethnic community. 9% HHs have average monthly income from secondary source ranges 1-2,000 taka, 5.5% have 2,001-5,000 taka and 1.5% has 5,001-8,000 taka. Survey also showed that their not much difference among the income source of primary & secondary but it affects household solvency very much. So, create strong secondary income source for the HHs is one of the major task in this LIFT initiative. Average monthly income from secondary source among 200 respondents found 434 taka which is very poor.

#### 4.2.9 Monthly expenditure of respondent HHs

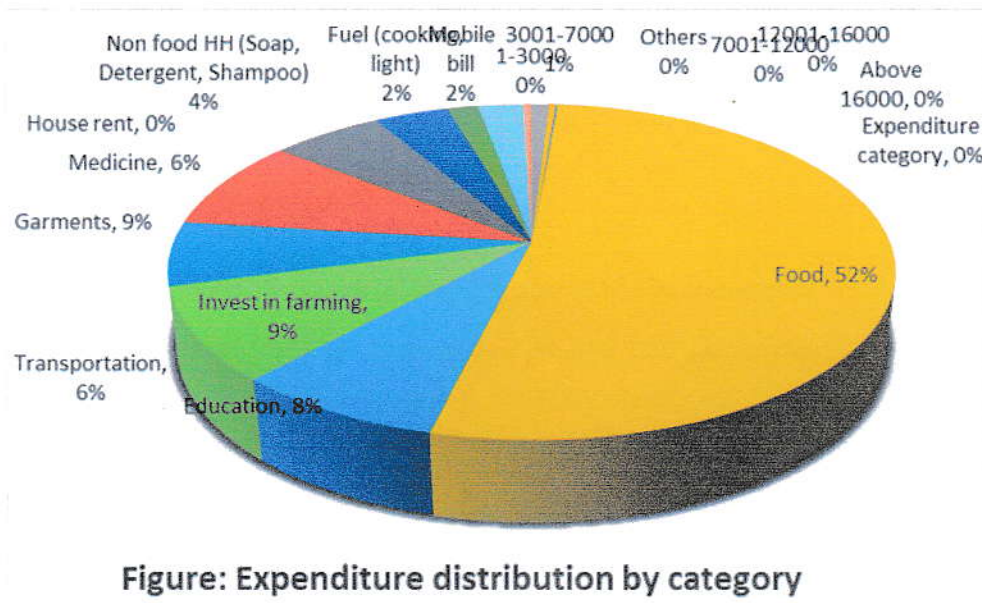
It was observed in the survey that 3.5% HHs average monthly expenditure ranges from 1-3,000 taka, 65.5% ranges 3,000-7,000 taka and 24% HHs expenditure ranges from 7,000-12,000 taka. On the other hand, only 5.5% HHs average monthly expenditure ranges 12,001-15,000 taka. Survey also showed that average monthly expenditure among 200 respondents found as 6,832 taka which is higher than average income. It means this ethnic group always have deficit to fulfill their livelihood.



**Figure-9: Monthly Expenditure of respondent HHs**

#### 4.2.10 Expenditure distribution by category

According to the survey it was found that 53% of the expenditure was used for food purpose. 9% of the expenditure was done for farming activities. It was evident from the survey that 8% of the expenditure was done for education and 6% for transportation.



**Figure: Expenditure distribution by category**

**Figure-10: Expenditure nature of respondent HHs**

#### 4.2.11 Years of experience in aquaculture

Sl. #	Year of experience	Number of HH	%	Average Experience (yrs)
1	None	200	100.0	0.0
<b>Total</b>		<b>200</b>		

**Table-9: Experience in Aquaculture**

Above table showed that none of the HHs has over experience in aquaculture. This ethnic group doesn't have enough water body on which they culture fish or other things. So, it is clear that people of surveyed areas don't have enough knowledge on aquaculture.

#### 4.2.12 Years of experience in commercial Cuchia culture

Sl. #	Year of experience	Number of HH	%	Average Experience
1	None	200	100.0	0
<b>Total</b>		<b>200</b>		

**Table 10: Experience in Cuchia Culture**

Above table showed that none of the HHs has experience in cuchia culture. So, it is clear that people of surveyed areas don't have any knowledge on cuchia culture.

### 4.3 Loan and Savings Information

#### 4.3.1 Whether respondent HHs have savings

Sl. #	Response	Number of HH	%
1	Yes	197	98.5
2	No	3	1.5
	<b>Total</b>	<b>200</b>	

**Table 11: Savings information of the Respondents**

According to the survey, it was evident that among 200 respondents 98.5% HHs have savings. It does not mean that respondent have lot of savings. All the respondents were engaged with local NGO that's why they have savings.

#### 4.3.2 Whether respondent HH have loan/credit

Sl. #	Response	Number of HH	%
1	Yes	163	81.5
2	No	37	18.5
	<b>Total</b>	<b>200</b>	

**Table 12: Loan/Credit information of the Respondents**

According to the survey, it was evident that among 200 respondents 163 (81.5%) have loan/credit and 37 HHs didn't have loan because NGO didn't give them loan. It didn't mean that respondent have lot of loan/credit. Respondents were engaged with local NGO that's why they have loan/credit.

#### 4.3.3 Respondent HHs have Bank Account

Sl. #	Response	Number of HH	%
1	Yes	15	7.5
2	No	185	92.5
	<b>Total</b>	<b>200</b>	

**Table 13: Bank account information of the Respondents**

According to the survey it was evident that among 200 respondents 185 HHs (92.5%) don't have any bank account. But respondents were engaged with local NGO's and many of them have DPS into the NGO's also. A significant number of respondent (7.5%) have bank account in the formal bank.

#### 4.3.4 Respondent HHs takes loan from money lender

Sl. #	Response	Number of HH	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 14: Take loan from money lender**

According to the survey it was evident that none of the respondent take loan from local money lender. It means respondent have enough access to local the NGO's. Survey also evident that local money lender doesn't give loan to the give people ethnic because they don't have capacity to repay loan.

### 4.4 Cuchia related information

#### 4.4.1 Cuchia culture practice

During survey, several questions have been asked to the respondents. As we know people in those areas didn't culture cuchia though cuchia is very familiar to them. After harvesting fish, a big number of people caught cuchia from open water areas like beel, baor, dighi, flood plain and they sold it to the local Bapari paikar or arotadar. Some of them also eat cuchia as we know cuchia is very delicious & nutritious food as well as medical values also.



Kind of aquaculture/cuchia culture practice	Response (n=200)					
	Not Applicable (=0)	Strongly disagree (=1)	Disagree (=2)	Moderately Agree (=3)	Agree (=4)	Strongly agree (=5)
Easy to learn	9 (5)	12 (6)	30 (15)	63 (32)	36 (18)	50 (25)
Risky	6 (3)	13 (7)	33 (17)	72 (36)	46 (23)	30 (15)
Time consuming	6 (3)	1 (1)	45 (23)	67 (34)	52 (26)	29 (15)
Complementary to the other agriculture practice	0 0	0 0	26 (13)	56 (28)	83 (42)	35 (18)
Requires a lot of investment	0 0	6 (3)	18 (9)	71 (36)	82 (41)	23 (12)
To buy less fish from outside	0 0	6 (3)	26 (13)	66 (33)	83 (42)	19 (10)
Produces enough fish for household's needs	5 (3)	16 (8)	89 (45)	66 (33)	14 (7)	10 (5)
Improved household's standard of living	3 (2)	48 (24)	48 (24)	81 (41)	14 (7)	6 (3)
Contributes to children's education	0 0	20 (10)	54 (27)	50 (25)	42 (21)	34 (17)
Average	3 (2)	14 (7)	41 (21)	66 (33)	50 (25)	26 (13)

Table 15: Cuchia culture practice

#### 4.4.2 Whether Cuchia culture is easy to learn

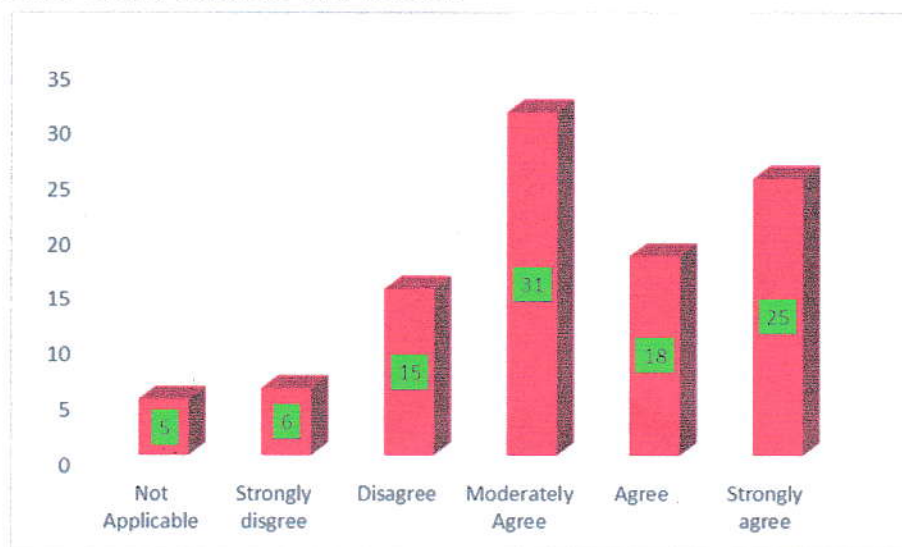


Figure-11: Cuchia culture is easy to learn

Among the selected respondents people were asked during survey whether cuchia culture is easy to learn. HHs response is illustrated in the above figure. It was revealed that 31% moderately agree, 25% strongly agree, 18% agree that cuchia culture is easy to learn. About 26% respondent told that Cuchia culture is not easy to learn.

#### 4.4.3 Whether Cuchia culture is Risky

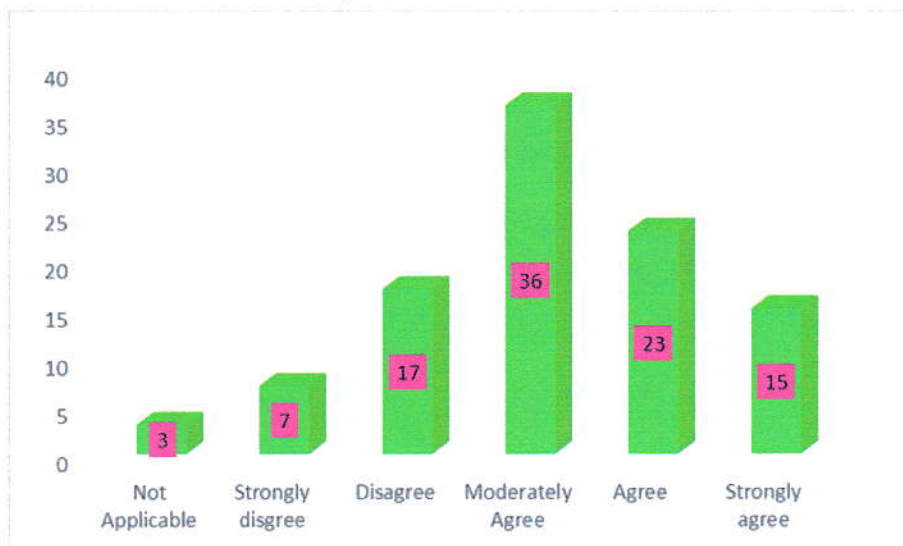


Figure-12: Cuchia culture is Risky

Among the selected respondents people were asked during survey whether Cuchia culture is risky. HHs response is illustrated in the above figure. It was revealed that almost 36% moderately agree, 15% strongly agree, 23% agree that cuchia culture risky. About 27% respondent told that Cuchia culture is not risky.

#### 4.4.4 Whether Cuchia culture is Complementary to the other agriculture practice

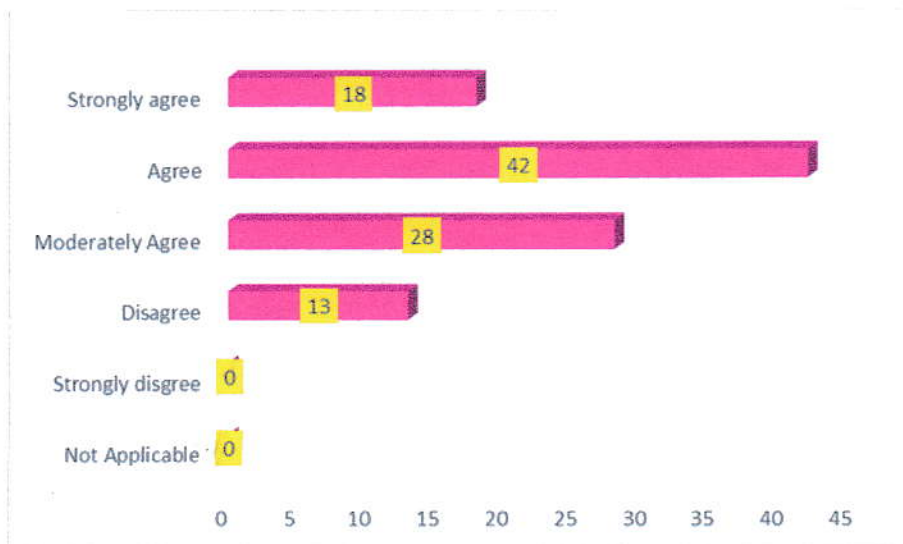


Figure-13: Cuchia culture is Complementary to the other agriculture practice

Survey result indicates that 42% HHs agreed Cuchia culture complement other agriculture practice, 28% moderately agree and 18% strongly agree. Survey results showed that almost 13% HHs didn't agree that Cuchia culture complement other agriculture practice.

#### 4.4.5 Whether Cuchia culture requires lot of investment

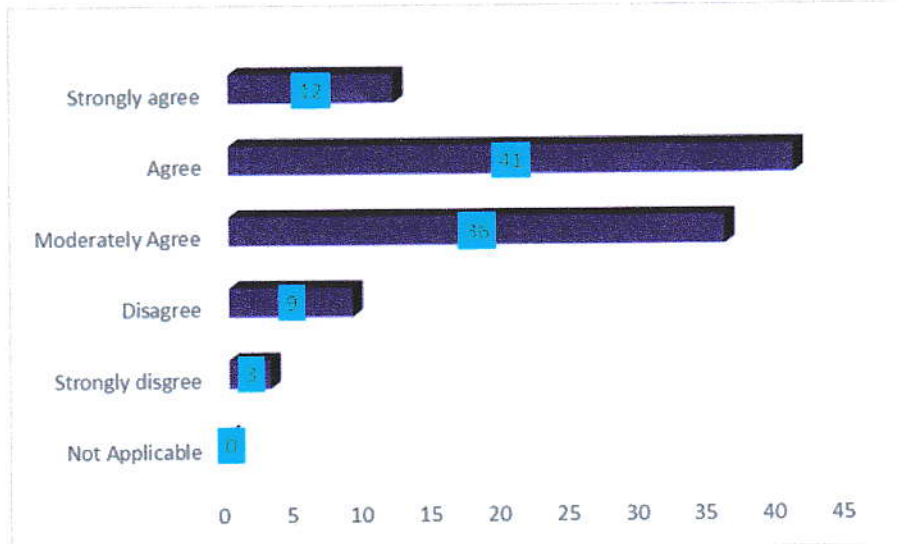


Figure-14: Cuchia culture requires lot of investment

Among the selected respondents people were asked during survey whether Cuchia culture required lot of money. HHs response is illustrated in the above figure. It was revealed that almost 36% moderately agree, 12% strongly agree, 41% agree that Cuchia culture required lot of money. About 9% respondent told that Cuchia culture didn't required lot of money. Actually there are different model for Cuchia culture of which constructed house required more money than other model like hapa, ditch etc.

#### 4.4.6 Whether Cuchia culture produces enough fish for household's needs

Among the selected respondents people were asked during survey whether cuchia culture produced enough fish for HHs use. HHs response is illustrated in the below figure-12. It was revealed that almost 33% moderately agree, 7% agreed, 5% agree that cuchia culture produced enough fish for HHs use. About 56% respondent told that cuchia culture didn't produce enough fish for HHs use. Cuchia culture mainly focused for its commercial value. As we know Bangladesh may earn lot of foreign exchange through exporting cuchia. People may often use it as food but not regularly that's why it significant number of people disagree.

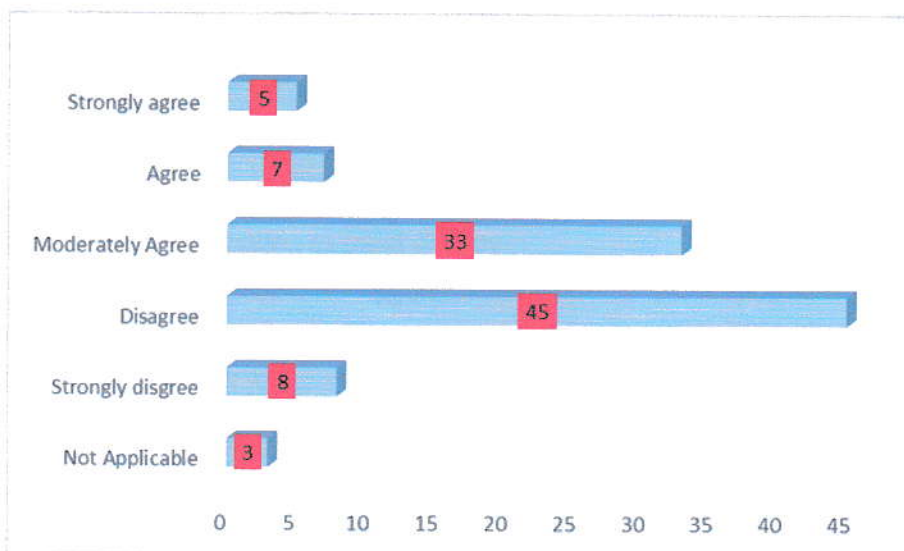


Figure-15: Cuchia culture produces enough fish for household's needs

#### 4.5 Cuchia Culture, Availability, Marketing

##### 4.5.1 Whether Cuchia is a fish

It has been revealed that irrespective of categories 100% of the respondents mentioned that Cuchia is a fish. It has been envisaged that people in surveyed upazillas know what Cuchia is. So, the initiative didn't face any trouble to introduce Cuchia in the working area which is a positive sign for starting this initiative.

Sl. #	Response	Number of respondents	%
1	Yes	200	100.0
2	No	0	0.0
	<b>Total</b>	<b>200</b>	

Table 16: Cuchia is a fish

##### 4.5.2 Availability of Cuchia

All the respondents noticed that Cuchia is available in wetland (beel and paddy land).

Sl. #	Response	Number of respondents	%
1	Wetland	200	100.0
	<b>Total</b>	<b>200</b>	

Table 17: Availability of Cuchia

##### 4.5.3 Harvest area of Cuchia

All respondent noticed that they harvest cuchia from beel and paddy land. In Dinajpur (Birampur) limited number of beel is present. Agricultural and aquaculture activities are very familiar here. Due to enough freshwater, cuchia culture can be very effective IGA to climate change adaptation in the aforesaid areas.

Sl. #	Response	Number of respondents	%
1	Wetland	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 18: Harvest area of Cuchia**

#### 4.5.4 Frequency of Cuchia taking as meal weekly

According to the survey result it was evident that none of the respondent take cuchia as meal. It evident that Cuchia is not that type of food which people eat regularly. Cuchia culture initiative is taken for it's commercial value not for food item.

Sl. #	Response	Number of respondents	%
1	Wetland	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 19: Cuchia taking as meal weekly**

#### 4.5.5 Whether respondents have involved in selling/trading Cuchia

It has been revealed that irrespective of categories none of the respondents are involved in Cuchia selling or trading.

Sl. #	Response	Number of respondents	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 20: Selling/trading of Cuchia**

#### 4.5.6 Whether Cuchia culture is profitable business

Among the selected respondents people were asked during survey whether Cuchia is a profitable business. HHs response is illustrated in the below table-21. 100% respondent mentioned that Cuchia culture is a profitable business. In the surveyed area, people are not culture Cuchia now. They caught Cuchia from beel and gher which are naturally grown. Many fish farmer didn't harvest Cuchia from their gher. They left gher alone after harvesting fish people then harvest Cuchia from it.

Sl. #	Response	Number of respondents	%
1	Yes	200	100.0
2	No	0	0.0
3	No Idea	0	0.0
	<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table 21: Cuchia culture is profitable business**

**4.5.7 Whether respondent know basic information of pond/hapa/others for cuchia farming:** Among the selected respondents people were asked about the basic information of cuchia farming. HHs response is illustrated in the below table-20. Almost 100% respondent mentioned that they don't culture cuchia in ditch, hapa, pond or others way. They also mention that they don't have technical idea for cuchia farming. But they can harvest cuchia from open gher area where cuchia naturally grown.

Sl. #	Response	Number of respondents	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 22: Know basic information of pond/hapa/others for cuchia farming**

**4.5.8 Whether respondent know basic information of Cistern for Cuchia farming**

Among the selected respondents people were asked about the basic information of cistern for cuchia farming. HHs response is illustrated in the below table-21. Almost 100% respondent mentioned that they don't know the culture technique of cuchia in cistern. They also mention that they don't have technical idea for cuchia farming in a cistern. But they also mention that the dipo owners are stock cuchia in cistern for buying and selling purpose.

Sl. #	Response	Number of respondents	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 23: Know basic information of Cistern for Cuchia farming**

**4.5.9 Whether respondent know basic information of Ditch for Cuchia farming**

Among the selected respondents people were asked about the basic information of ditch for cuchia farming. HHs response is illustrated in the below table-22. Almost 100% respondent mentioned that they don't know the culture technique of cuchia in a ditch. Most of them also revealed that they first time listen this sort of ideas for cuchia farming.

Sl. #	Response	Number of respondents	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

**Table 24: Know basic information of Ditch for Cuchia farming**

**4.5.10 Months/periods adequate cuchia is available**

Among the selected respondents people were asked during which month's adequate cuchia is available. HHs response is illustrated in the above figure-25. It was revealed that almost 44% respondents told that during bangla month Chaitra to Ashar, huge number of cuchia

found in the working area. On the other hand, 14.5% and 19% respondents told that cuchia is available in the month of Falgun-Sraban and Baishakh-Ashar respectively.

Sl. #	Response	Number of respondents	%
1	Agrahayan-Magh	2	1.0
2	Ashar-Sraban	1	0.5
3	Ashwin-Kartik	4	2.0
4	Baishakh-Ashar	38	19.0
5	Chaitra-Ashar	88	44.0
6	Baishakh-Jaistha	12	6.0
7	Baishakh-Sraban	11	5.5
8	Falgun-Sraban	29	14.5
9	Bhadra-Kartik	11	5.5
10	Sraban-Ashwin	4	2.0
	<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table 25: Months/periods adequate cuchia is available**

#### 4.5.11 Months/periods cuchia don't found or less found

Among the selected respondents people were asked during which month's less amount of cuchia is available. HHs response is illustrated in the above figure-26. It was revealed that almost 56% and 12% respondents told that less amount of cuchia found during bangla month Ashar-Magh and Ashar-Kartik respectively.

Sl. #	Response	Number of respondents	%
1	Ashar-Magh	112	56.0
2	Ashar-Kartik	24	12.0
3	Ashar-Poush	7	3.5
4	Baishakh-Sraban	11	5.5
5	Bhadra-Magh	17	8.5
6	Sraban-Kartik	21	10.5
7	Other	8	4.0
	<b>Total</b>	<b>200</b>	

**Table 26: Months/periods cuchia don't found or less found**

#### 4.5.12 Number of months most difficult to get cuchia Place of selling cuchia

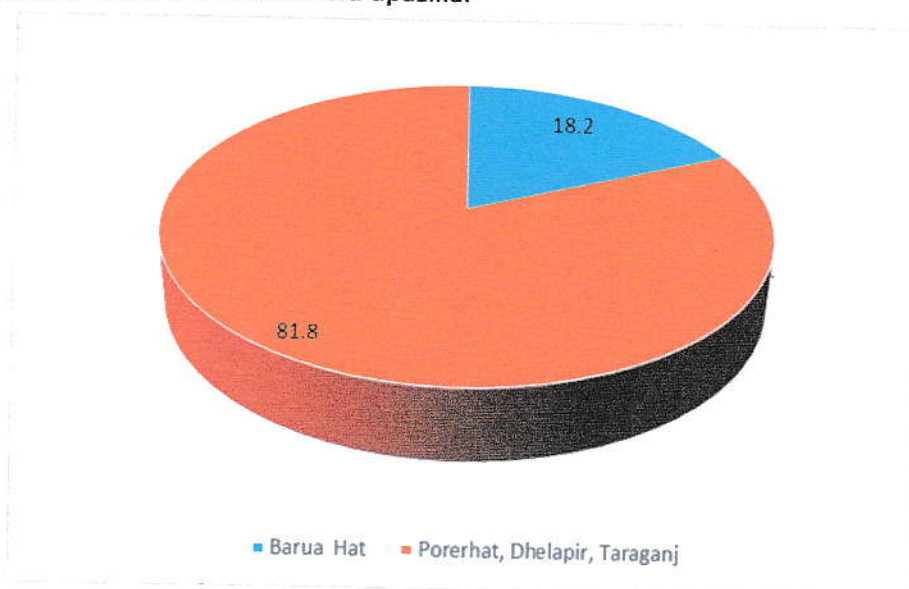
Among the selected respondents people were asked during which month's most difficult to get cuchia. HHs response is illustrated in the above figure-27. It was revealed that almost 35.5% respondents told that out of 12 months in a year 5 months most difficult to get cuchia, 23.5% told 4 months, 20% 8 months and 14.5 % told 6 months most difficult to get cuchia in the working area.

Sl. #	Response	Number of respondents	%
1	2 months	1	0.5
2	4 months	47	23.5
3	5 months	71	35.5
4	6 months	29	14.5
5	7 months	11	5.5
6	8 months	40	20.0
7	9 months	1	0.5
	<b>Total</b>	<b>200</b>	<b>100.0</b>

**Table 27: Number of months most difficult to get cuchia**

#### 4.5.13 Place of selling cuchia

Figure-13 showed that 105 respondents mention they don't know the information for cuchia selling, 81.8% respondents told they sell their cuchia in Porerhat, Dhelapir, Taraganj bazaar of Nilphamary and Rangpur district, 18.2% respondents also mention to sell the cuchia in Barua bazar in the aforesaid upazilla.



**Figure-16: Place of selling cuchia**

#### 4.5.14 Price of cuchia

Below figure-14 showed that a total of 44% respondents told the average price per kg cuchia in the working area is BDT 250-350, a total of 15.5% respondents mentioned that average price per kg cuchia in the working area is BDT 150-250. About 40% respondents don't have any idea about the price of cuchia.





Figure-17: Price of Cuchia per kg

#### 4.5.15 Whether respondent grading cuchia before sell

HHs response is illustrated in the below table-26. It was revealed that 100% respondents don't grading their cuchia before sell. They also told that cuchia below 30gm to 50 gm are not eligible for export. They also mention that cuchia above 500gm has upper market price.

Sl. #	Response	Number of respondents	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

Table 28: Grading cuchia before sell

#### 4.5.16 Time of highest price for cuchia selling

HHs response is illustrated in the below table-27. It was revealed that almost 69.5% respondents mentioned that during the period of April-June they get the highest market price of cuchia in the working area. Among the respondents 15% told July-August and 15.5% till October-December they get more prices then other time of the year.

Sl. #	Response	Number of respondents	%
1	April-June	139	69.5
2	July-Aug	30	15.0
3	Oct-Dec	31	15.5
	<b>Total</b>	<b>200</b>	<b>100.0</b>

Table 29: Time of highest price for cuchia selling

#### 4.5.17 Whether respondents get support from different sources for cuchia farming

HHs response is illustrated in the below table-28. It was revealed that almost 100% respondents mention that they don't get support for cuchia farming neither govt. nor NGO sector. But few of the respondents told that recently a local NGO named 'Gram Bikash Kendra (GBK)' has taken an initiative to support for the cuchia farmers as well as cuchia traders in Birampur and Fulbari upazilla.

Sl. #	Source	Response		
		Yes	No	Total
1	Government	0	200 (100)	200
2	NGO	0	200 (100)	200

Table 30: Support from different sources for cuchia farming

#### 4.5.18 Whether respondent engage in cuchia breeding for getting cuchia

HHs response is illustrated in the below table-29. It was revealed that almost 100% respondents mention that they are not involved in cuchia breeding. Another point to be noted that, they don't know the technical aspects of cuchia breeding. They only engage themselves in harvesting cuchia from natural sources.

Sl. #	Response	Number of respondents	%
1	Yes	0	0.0
2	No	200	100.0
	<b>Total</b>	<b>200</b>	

Table 31: Support from different sources for cuchia breeding

## Chapter-V



## Conclusions

## Chapter-Five

# Conclusions

In the recent past years, cuchia export has increased tremendously but at the same time cuchia culture is not increase proportionately. Cuchia is a Promising export fishery product that can play a vital role in our national economy and also create a huge employment opportunities for the rural people specially the ethnic or tribal community. Though tribal peoples are taking cuchia as their regular meal, so its important to introduce cuchia culture techniques and disseminate it towards the tribal community as though they can practice the technical know-how of cuchia farming a sthier regular IGA. At the same time, awareness and motivational activities should be done continuously to promote the cuchia culture among the ethnic community rather than indiscriminate harvesting of cuchia from natural sources. Point to be noted that, entrepreneur in the aspect of cuchia farming among the ethnic community need to be introduced for the development of cuchia marketing systems.

In the served area, cuchia have a strong established market chain that can be the positive sign to fostering the cuchia culture in the working area. During survey, Birampur upazilla found to be the most potential area for cuchia culture rather than the other upazillas of Dinajpur district. In order to fostering the culture of cuchia and also to conserve this native species, the following initiatives needs to be taken immediately-

- I. Government sectors specially Department of Fisheries (DoF) along with Bangladesh Fisheries Research Institute (BFRI) needs to take special attention to introduce cuchia culture system and expands it to the farmers as priority basis in order to protect the species from extinction.

- II. For safe natural breeding of cuchia, its high time to create cuchia sanctuary across the country based on its availability and geographical suitability. in this regard, community led monitoring must be introduced to sustain these activities.
- III. All kinds of cuchia harvesting or hunting from natural sources should be banned.
- IV. Research programmes should be conducted on various issues regarding cuchia culture, feeding management of cuchia, breeding biology etc.
- V. Create massive awareness on cuchia culture.
- VI. Special attention need to given to the tribal or ethnic communities to promote cuchia culture rather than over harvesting this species. Grants and subsidy for cuchia culture towards the community people can be introduces to make it popular.
- VII. Flexible loan policy need to be design for the cuchia culturists. Govt. as well and Palli karma sahayak Foundation (PKSF) and its Partner Organizations should come forward in this connection.

## Chapter-VI



## References

## Chapter-Six

# References

- Ahmed, M. & Shah, A. W. 1995. Pond fishery practices in different agro ecological regions of Bangladesh socio-economic studies on NGO participation and development issues. Environment and resources analysis centre Dhaka. pp. 1-14.
- Alam, M. F. & Thomson, K. J. 2001. Current constraints and future possibilities for Bangladesh fisheries. *Food Policy* 26, 297-313.
- BFRI, 2016. BFRI invented technologies and research success 2009-2016 (in Bengali). Bangladesh Fisheries Research Institute, Ministry of Fisheries and livestock, Dhaka, Bangladesh. pp. 4-6.
- Chakravarty, S. & Kalita, J. C. 2012. An investigation of anti diabetic medicinal plants used by villagers in Nalbari district, Assam, India. *Int. J. Pharma. Sci. Res.* 3 (6): 1693-1697.
- Das, R.D., Sharmin, S. & Rahman, M. 2016. Controlled breeding and nursery technique of freshwater kuchia. *Jatio matshaw saptaho sankolon 2016* (in Bengali). Department of Fisheries, Ministry of Fisheries and livestock, Dhaka, Bangladesh. pp.76-78.
- DoF, 2014. *Jatio matshaw saptaho sankolon 2014* (in Bengali). Department of Fisheries, Ministry of Fisheries and livestock, Dhaka, Bangladesh. pp.129-130.
- DoF, 2016. *Jatio matshaw saptaho sankolon 2016* (in Bengali). Department of Fisheries, Ministry of Fisheries and livestock, Dhaka, Bangladesh. pp.76-78.
- Haniffa, M. A., Nagarajan, M. & Gopalakrishnan, A. 2006. Length-weight relationships of *Channa punctata* (Bloch, 1793) from Western Ghats rivers of Tamil Nadu. *J. Appl. Ichthy.* 22: 308-309.
- Hasan, M. M., Sarker, B. S., Nazrul, K. M. S., Rahman, M. M. & Mamun, A. 2012. Marketing channel and export potentiality of freshwater mud eel (*Monopterus albus*) of Noakhali region in Bangladesh. *Int. J. LifeSc. Bt & Pharm. Res.* 1(3):231-239.
- IUCN Bangladesh, 2000. Red book of threatened fishes of Bangladesh, IUCN. The world conservation union, p. 24.
- IUCN Bangladesh, 2003. Bangladesher bipanno banno prani, IUCN. The world conservation union. 294 pp.
- Jahan, D. A., Rashid, J., Khan, M. M. & Mahmud, Y. 2014. Reproductive biology and gonad histology of mud eel, *Monopterus albus* (Hamilton, 1922). *Int. J. Life Sci. Bt. & Pharm. Res.* 3(1): 231-238.
- Jamir, N. S. & Lal, P. 2005. Ethnozoological practices among Naga tribes. *Ind. J. Tradit. Knowle.* 4(1): 100-104.

- Jana, D. & Dasgupta, M. 2008. Length-weight relationship and relative condition of the mud eel, *Monopterusuchia* (Hamilton, Buchanan) from West Bengal. *J. Inland Fish. Soc. Ind.* **40**(1): 54-58.
- Jhingran, A. G. 1972. Fluctuation in the ponderal index of the gangetic ancovy *Satipinna phasa* (Ham.) and interpretation of "Salmonid bands" and spawning marks. *Proc. Ind. Nat. Sci. Acad. (B)*. **37** (4): 1-62.
- Kakati, L. N., Bendong Ao & Doulo, V. 2006. Indigenous knowledge of zootherapeutic use of vertebrate origin by the Ao tribe of Nagaland. *J. Hum. Ecol.* **19**(3): 163-167.
- Munshi, J. S. D. Roy, P. K. & Nasar, S. S. T. 1989. Oxygen uptake capacity of larval respiratory organs of airbreeding swamp mud eel, *Monopterusuchia* (Ham.): A morphometric study. *Proc. Indian natn. Sci. Acad. B55*, Nos. 5 & 6, pp. 309-316.
- Narejo, N. T., Rahmatullah, S. M. & Rashid, M. M. 2002. Length-weight relationship and relative condition factor (Kn) of *Monopterusuchia* (Hamilton). *Ind. J. Fish.* **49**(3): 329-333.
- Narejo, N. T., Rahmatullah, S. M. & Rashid, M. M. 2003. Reproductive biology of air-breathing freshwater mud eel, *Monopterusuchia* (Ham). from Bangladesh. *Ind. J. Fish.* **50**(3): 395-399.
- Nasar, S. S. T. 1989. Parental care and fecundity in *Monopterusuchia* (Ham). *J. Fresh. Biol.* **1** (1): 67-70.
- Rashid, H., Alam, J., Mithu, M. & Hossain, M. A .R. 2012. Study of reproductive physiology of mud eel, *Monopterusuchia* for artificial propagation. *5<sup>th</sup> Fish. Con. & Res. Fair*. P. 1.
- Saikia, K. & Ahmed, R. 2012. Wetland fish biodiversity of Majuli river island (India) and their medicinal values. *The Clarion*. **1**(2): 81-86.
- Singh, B. N., Towheed, M. A. & Munshi, J. S. D. 1989. Respiratory adaptations in the larvae of *Monopterusuchia* (Ham.). *J. Fish. Biol.* **34**: 637- 638.
- Talwar, P. K. & Jhingran, V. G. 1991. *Inland Fishes of India and Adjacent Countries*. Oxford & IBH Publishing Co. Pvt. Ltd. India. **1&2**:1158 pp.
- Zahan, A.D., Das. R. D., Rahman, M. & Sharmin, S. 2016. Breeding and fry production techniques of *Monopterusuchia*. BFRI invented technologies and research success 2009-2016 (in Bengali). Bangladesh Fisheries Research Institute, Ministry of Fisheries and livestock, Dhaka, Bangladesh. pp. 4-6.



*Appendices*



*Baseline Survey*  
*Questionnaire*

## Appendices

### Annex – I (Questionnaire)

#### **Part-A: Socio-economic Condition of the Households**

<b>1.0 Survey information</b>																							
Farmers identification number :		<input style="width: 70px;" type="text"/>	Survey Year:.....																				
HH Survey Number:		<input style="width: 80px;" type="text"/>																					
<b>2.0 Location Details:</b>																							
District:.....Upazilla:.....Union:.....																							
Village:.....Para/Cluster:.....																							
<b>3.0 Household Details</b>																							
3.1 Name of the Household Head: .....				Male	<input type="checkbox"/>	Female	<input type="checkbox"/>																
3.2 Name of the Father/Husband of HH Head: .....																							
3.3 Name of the Respondent:.....				Male	<input type="checkbox"/>	Female	<input type="checkbox"/>																
3.4 Religion:		<input style="width: 60px;" type="text"/>	Muslim = 1; Hindu = 2; Christian = 3; Other = 4																				
3.5 Contact/Cell Phone of HH (if any member):.....		<input style="width: 180px;" type="text"/>																					
3.6 Profession of the HH Head:.....		<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">01. Farmer (Own land)</td> <td style="width: 50%; border: none;">10. Private service</td> </tr> <tr> <td style="border: none;">02. Farmer (Others land)</td> <td style="border: none;">11. Homemaker</td> </tr> <tr> <td style="border: none;">03. Day labour</td> <td style="border: none;">12. Students</td> </tr> <tr> <td style="border: none;">04. Trained/factory labour</td> <td style="border: none;">13. Crab fattener</td> </tr> <tr> <td style="border: none;">05. Transport labour (handling)</td> <td style="border: none;">14. Cuchia farmer</td> </tr> <tr> <td style="border: none;">06. Driver (rickshaw/boat/van)</td> <td style="border: none;">15. Cuchia vendor</td> </tr> <tr> <td style="border: none;">07. Small businessman</td> <td style="border: none;">16. Fish culture</td> </tr> <tr> <td style="border: none;">08. Govt. service</td> <td style="border: none;">17. Fish trading</td> </tr> <tr> <td style="border: none;">09. NGO service</td> <td style="border: none;">18. Others (specify)</td> </tr> </table>				01. Farmer (Own land)	10. Private service	02. Farmer (Others land)	11. Homemaker	03. Day labour	12. Students	04. Trained/factory labour	13. Crab fattener	05. Transport labour (handling)	14. Cuchia farmer	06. Driver (rickshaw/boat/van)	15. Cuchia vendor	07. Small businessman	16. Fish culture	08. Govt. service	17. Fish trading	09. NGO service	18. Others (specify)
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06. Driver (rickshaw/boat/van)	15. Cuchia vendor																						
07. Small businessman	16. Fish culture																						
08. Govt. service	17. Fish trading																						
09. NGO service	18. Others (specify)																						
3.7 Education level of HH Head:		<input style="width: 60px;" type="text"/>	Highest class passed (mention as class number)																				
3.8 No. of Household members:		<input style="width: 60px;" type="text"/>	Eating together for last six months																				
<b>4.0 Land based information of Household:</b>																							
4.1 Area of dwelling house (decimal)		<input style="width: 100px;" type="text"/>	4.5 Status of dwelling: <input style="width: 50px;" type="text"/>																				
			(Own= 1; rented= 2; relative= 3; Khash= 4, Other= 5 (Specify))																				
4.2 Total area of land under your possession (decimal):		<input style="width: 100px;" type="text"/>	4.6 No. of Pond/Gher <input style="width: 70px;" type="text"/>																				
Own	Leased in	Leased out				Mortgaged in	Mortgaged out																
<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>	<input style="width: 50px;" type="text"/>																			
		<input style="width: 80px;" type="text"/>	4.7 Pond status: <input style="width: 60px;" type="text"/>																				

4.3 Total area of pond/Gher (decimal): (Single owned -1; Joint owned-2; Single leased-3; Joint leased-4)

4.4 Total current income from aquaculture.....  .....tk

**5.0 Family income pattern:**

5.1 How many person of your family earn money?  Male: \_\_\_\_ Female: \_\_\_\_ Child: \_\_\_\_

5.2 How much is your monthly/yearly income from major occupation?  Tk. Name of major occupation in terms of income: .....

5.3 How much is your additional monthly/yearly income from other/secondary occupation?  Tk. Name of other/secondary occupation in terms of Income: .....

**5.3 Family income sources:**

- |  |  |
|--|--|
| <p>5.3.1 Paddy</p> <p style="margin-left: 20px;">5.3.1.1 Awus: .....</p> <p style="margin-left: 20px;">5.3.1.2 Amon: .....</p> <p style="margin-left: 20px;">5.3.1.3 Boro: .....</p> <p>5.3.2 Wheat: .....</p> <p>5.3.3 Jute.....</p> <p>5.3.4 Sugarcane.....</p> <p>5.3.5 Potato &amp; sweet potato.....</p> <p>5.3.6 Pulse and oil.....</p> <p>5.3.7 Vegetable.....</p> <p>5.3.8 Nuts.....</p> <p>5.3.9 Beetle leafs.....</p> <p>5.3.10 Coconut.....</p> <p>5.3.11 Banana.....</p> <p>5.3.12 Other fruits.....</p> <p>5.3.13 Aquaculture (White fish).....</p> | <p>5.3.14 Crab fattening.....</p> <p>5.3.15 Shrimp Culture.....</p> <p>5.3.16 Prawn culture.....</p> <p>5.3.17 Cuchia culture.....</p> <p>5.3.18 Mussels trade.....</p> <p>5.3.19 sesame.....</p> <p>5.3.20 Mung Bean.....</p> <p>5.3.21 Chickens.....</p> <p>5.3.22 Duck.....</p> <p>5.3.23 Goat/Sheep.....</p> <p>5.3.24 Cattle.....</p> <p>5.3.25 Pegion.....</p> <p>5.3.26 Honey.....</p> <p>5.3.27 Goal Pata.....</p> <p>5.3.28 Milk sell.....</p> <p>5.3.29 Timber tree.....</p> |
|--|--|

**6.0 Family expenditure pattern:**

How much money is spent monthly for your family?

Tk.

Subject	Amount in Tk. Or %
6.1 Food	
6.2 Education	
6.3 Investment in farming	
6.4 Transportation	
6.5 Garments	
6.6 Medicine	
6.7 House rent	
6.8 Non food HH (goods/Soap/Detergent/Oil)	
6.9 Fuel (cooking+ lights)/Electricity	
6.10 Others/Mobile bill	
6.11 Others (1)	
6.12 Others (2)	

**8.0 Information about HH Financial System:**

8.1 Have any household savings? Yes:  No:  Amount.....BDT

8.2 Have any household loan/credit? Yes:  No:  Amount.....BDT

8.2.1 If Yes, please mention the purpose of the loan/credit: Crab/Tilapia/Eel/Shrimp Culture/Others.....

8.3 Have any linked with other NGO/Financial Institution? Yes:  No:  Name.....

8.4 Have you any bank account? Yes:  No:  Bank name.....

8.5 Have you taken loan from moneylender? Yes:  No:  Loan amount.....

8.5.1 Purpose for lending...

**9.0 Technological Information**

9.1 How many years of experience do you have in aquaculture: .....(yrs.) commercial culture of Eel fish.....(yrs.)

9.2 Do you have any family members or close relatives who are involved in Eel fish culture (Yes -1; No -0).....

9.3 If yes, who .....

9.4 Have you or any members of your family been the beneficiary of any aquaculture program (Yes -1; No - 0)? .....

9.5 If yes.....give the details.....

Name of the program/institution	Nature of support (if training give subject of training)	Training days

**10.0 Access to finance or kind supports**

Name of organizations/institutions?	What type of support you have received from these organizations/institutions	Frequency/Quantity/Taka	Unit

11.0 Which of the following statements apply to the aquaculture practice/Eel culture (use a Likert scale from 1-5 to indicate strength of agreement: 1= strongly disagree, 5 = strongly agree. 0 = n/a)

Statement	Score					
	1	2	3	4	5	0
The kind of aquaculture/cuchia culture practice is:						
a) easy to learn						
b) risky						
c) time consuming						
d) complementary to the other agriculture practice						
e) requires a lot of investment						
f) means I have to buy less fish from outside						
g) produces enough fish for my household's needs						
h) has improved my household's standard of living						
i) contributes to my children's education						

### 12.0 Household Composition

No	Name	Sex (Code)	Age	Marital status (Code)	Education (Code)	Anthropometry		
						Wt. (kg)	Hgt. (cm)	MUAC (mm)
1								
2								
3								
4								
5								
6								
7								

**Code:** (For Sex : M = 1, F = 2) **Marital status:** (Yes 1, No 2) **Education:** (Illiterate 1, <primary 2, SSC 3, HSC 4, Other 5)

### 13.0 HH Food Consumption Status

Select a mother to recall all the foods she consumed yesterday, from the time she woke up in the morning till she went to bed at night includes beverages and small foods consumed as snacks in between the major meals, weather home or outside the home.

No.	Question	Response Code	Response
1	Cereals (Rice, Bread, wheat etc.).....	1= Yes; 0= No, 9= Don't know	
2	Tubers (Potato, Sweet potato).....	1= Yes; 0= No, 9= Don't know	
3	Vegetables (Spinach, Amaranth, Kangkong, Gourd/Pumpkin, Jute, Eggplant, Chichinga, Tomato, Beans, Gourd, Green Banana, Potol, Data, Green papaya, Pumpkin, Cauliflower, Cabbage, Cucumber, Snackbeans, Carrot, khonkhol, Bit etc.).....	1= Yes; 0= No, 9= Don't know	
4	Fruits (Mango, Jackfruit, Guava, Orange, Apple, Water melon, Safoda, Coconut, Other local fruits etc.).....	1= Yes; 0= No, 9= Don't know	
5	Fresh Fish (freshwater, marine)	1= Yes; 0= No, 9= Don't know	
6	Processed Fish (dry, icing, salting, smoking.....)	1= Yes; 0= No, 9= Don't know	
7	Cuchia/EEL fish	1= Yes; 0= No, 9= Don't know	
8	Crab	1= Yes; 0= No, 9= Don't know	
9	Legumes (Dal (any)e.g. Lentil, Khesari)	1= Yes; 0= No, 9= Don't know	
10	Spices/condiments (Chilies, herbs, pickle etc.)	1= Yes; 0= No, 9= Don't know	
11	Milk/Dairy (Milk, Curd etc.)	1= Yes; 0= No, 9= Don't know	
12	Meat	1= Yes; 0= No, 9= Don't know	
13	Eggs	1= Yes; 0= No, 9= Don't know	
14	Fats/Oils (Edible oil. Butter, Ghee, Animal fat etc.)	1= Yes; 0= No, 9= Don't know	
15	Sweets (Misti, Sugar, Molases, Honey etc.)	1= Yes; 0= No, 9= Don't know	
16	Drinks/Beverages (Tea, Coffee, Coke, Pepsi, RC, 7up, Fanta, Merinda, Pran juice, Mango juice, Frutika etc.)	1= Yes; 0= No, 9= Don't know	
17	Others (Specify)	1= Yes; 0= No, 9= Don't know	

**14.0 Food consumption and how low-intensity culture species (including eel, mud crab and tilapia) and other contribute to the dietary nutrition and earned incomes**

Food Items/ Species	Sources (Quantity/day)				Intensity of consumption (No.)			
	Own	Purchased from market	Self-caught From open body	Others	Meal/day	Day/week	Week/ Month	Month/ Year
Tilapia								
Mud Crab								
Cuchia/Eel fish								
Carp fishes								
Shrimp/Prawn								
Other sea fishes								
Pangus								
Catfish (Shoal/taki/magur/ Shing/Tengra								
Others/Perse/Vetki								

**15.0 General conception of members about Cuchia**

15.1 Is cuchia a fish..... Yes  No

If No.....give the details.....

15.2 Where Cuchia founds..... beel/Gher/paddy field/marshy areas/mangrove areas/pond/others.....

15.3 Frequency of cuchia taking as meal..... everyday/weekly/monthly

15.4 From where you harvest cuchia.....Gher/paddy field/marshy areas/mangrove areas/pond/others.....

15.5 Have you involved in selling/trading Cuchia..... Yes  No

If yes.....give the details.....

15.6 Do you have any idea, cuchia culture is profitable business..... Yes  No  No idea

**16.0 Basic information of pond/hapa/others for cuchia farming:**

Yes  No

16.1 Pond water area (decimal): ..... Diko-area (decimal): .....

16.2 Water retention in pond for fish culture (no of month): .....

16.3 Water source (STW/DTW/Low lift pump/Motor pump/Tradel pump/Rainfall/Others): .....

16.4 Tenure status (Single owned -1; Joint owned-2; Single leased-3; Joint leased-4):.....

If multiple ownership (joint owned or joint leased), how many persons: .....

16.5 Soil type (Sandy-1; Silty-2; Clay-3; Loamy-4; Sandy loam-5; Clay loam-6; Silty loam -7; others pls. specify):.....

17.0 Basic information of Cistern for Cuchia farming: Yes  No

17.1 Size: Length ..... (meter); Width ..... (meter) & depth:..... (meter);

17.2 Total size: ----- (cubic meter)

17.3 Tenure status (Single owned -1; Joint owned-2; Single leased-3; Joint leased-4):.....

If multiple ownership (joint owned or joint leased), how many persons: .....

17.4 How many Cistern do you have: -----

17.5 How far is the cistern from your homestead (meter):-----

18.0 Basic information of Ditch for Cuchia farming: Yes  No

18.1 Size: Length ..... (meter); Width ..... (meter) & depth:..... (meter);

18.2 Total size: ----- (cubic meter)

18.3 Tenure status (Single owned -1; Joint owned-2; Single leased-3; Joint leased-4):.....

If multiple ownership (joint owned or joint leased), how many persons: .....

18.4 How many Ditch do you have: -----

18.5 How far is the ditch from your homestead (meter):-----

**19.0 Availability of Cuchia in the working area**

Sl. No.	Issues	Number & Name of month(s)											
19.1	Number of months/periods adequate cuchia is available in this area												
19.2	Number of months/periods cuchia dont found or less found												
19.3	Months most difficult to get cuchia (put tick mark)												
		Baishakh	Jaistha	Ashar	Sravan	Bhadra	Ashwin	Kartik	Agrahayan	Poush	Magh	Falgun	Chaitra

**20.0 Market linkage for Cuchia in the working area**

20.1 Where do you sell cuchia.....

20.2 Price of cuchia per kg.....

20.3 Do grading cuchia before sell-----yes  No

20.4 When time you get the highest price for cuchia selling--Jan-March  Apri-June  July-August  Oct-dec

**21.0 Other related information**

21.1 Do you get any support from Govt, (DoF) for cuchia farming-----yes  No

21.2 Do you get any support from NGO for cuchia farming-----yes  No

21.3 Are you engage in cuchia breeding for getting cuchia fry-----yes  No

21.4 Where do you get cuchia fry for culture-----

21.5 What are1 the constraints of cuchia farming/culture in your area-----

21.5.1-----

21.5.2-----

21.5.3-----

21.6 Do you have any suggestion for cuchia farming

21.6.1-----

21.6.2-----

21.6.3-----

Signature of the interviewer.....

Reviewed by Focal Person (LIFT) of PO: ..... Signature and date:.....

Thanks for your kind cooperation